THE IRON TRADE REVIEW

Published Weekly
Vol. LXIII No. 22

CLEVELAND, NOVEMBER 28, 1918

Entered as second-class matter at the post office at Cleveland, Ohio, under the act of March 3, 1879

Four Dollars a Year
Single Copies 15 Cents

GENERAL LIBRARY
NOV 29 1918
UNIV. OF MICH.

HONOR to the Coke Producers who have so nobly done their part to win the war.

They can serve their country equally faithfully during the reconstruction period by devoting special efforts to improve the quality of their product and maintain an output sufficient to meet the demands of industry.

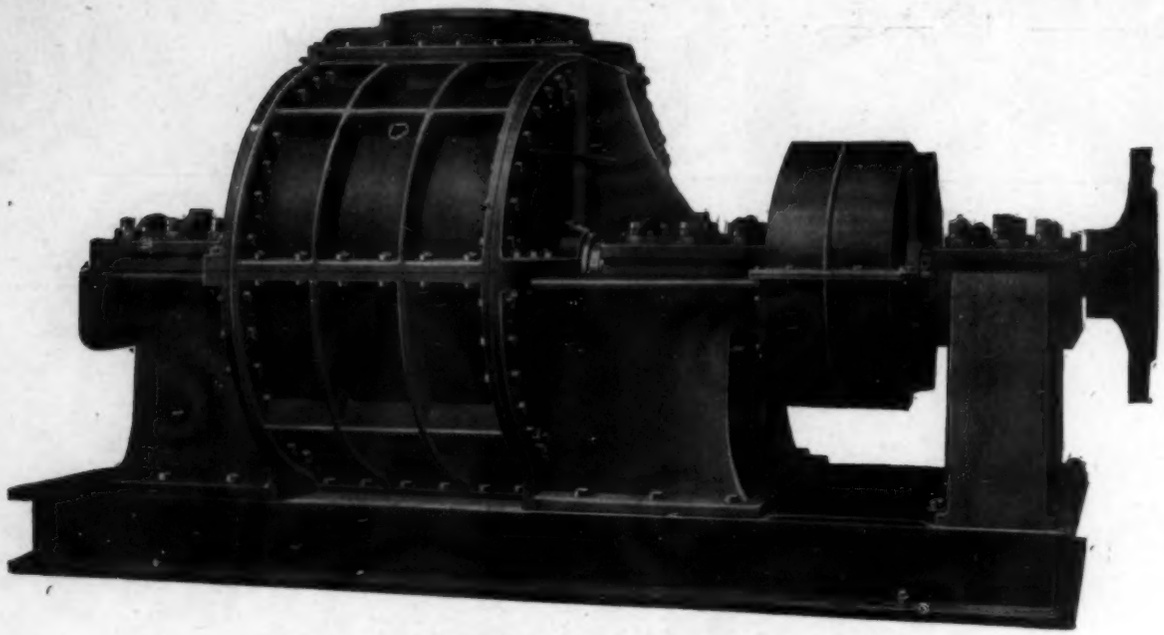
UNITED STATES FUEL ADMINISTRATION

By Warren S. Blauvelt

BUREAU OF PRODUCTION, COKE SECTION.

REILLY-PEABODY FUEL COMPANY
PITTSBURGH

Advertisers' Index, pages 174, 175 Contents, page 1214 (Editorial) "Where-to-Buy", page 94
Engineering Directory, pages 140, 141 Classified Advertisements, pages 151-173



Connersville High Pressure Gas Pump

CONNERSVILLE

Gas Pumps, Exhausters and Boosters

CONNERSVILLE GAS PUMPS, EXHAUSTERS and BOOSTERS are exceptionally advantageous wherever gas is handled.

Although they are the type of simplicity, they possess all the features of practical construction, resulting from years of experience.

CORRECT

The testimonials which we have received from users of CONNERSVILLE PUMPS, EXHAUSTERS and BOOSTERS, prove that "Connersville" products are correct both in design and service. Many state that they out-work as well as out-last the best pumps that they have ever been able to obtain.

EFFICIENT

Their range of capacity is from 25 to 40,000 cu. ft. per minute, and their pressure range is from ½ to 10 pounds. There is no lost motion—all motion is rotary, parts being carefully balanced and separated by accurately gauged clearances. There are no valves, no springs, and no internal parts requiring lubrication.

SERVICEABLE

The service to which CONNERSVILLE PUMPS, EXHAUSTERS and BOOSTERS can be put, is almost unlimited. They can be used for handling air, gas, steam, water and all other fluids.

These pumps may be driven by belt, by direct connected steam engine, by electric motor direct connected or through gear and pinion, or by silent chain.

If you wish correct and efficient pump service write for a "CONNERSVILLE" catalog.

THE CONNERSVILLE BLOWER CO.

CHICAGO
929 Monadnock Bldg.

CONNERSVILLE, IND.

NEW YORK
114 Liberty St.

THE IRON TRADE REVIEW

Vol. LXIII Cleveland, November 28, 1918 *No. 22*

Confidence Returns, Buying Grows

Iron and Steel Markets Responding to More Cheerful Influences—Export Demand Appearing in Earnest and Reconstruction Tonnage Looms Large—Automobile Builders Placing Orders for Steel—Maximum Prices Likely to End Jan. 1

ABSENCE of any apparent pressure to sell and a growing volume of buying for peacetime needs are imparting a more reassuring tone to the iron and steel market. This is accompanying the further steps which the government has taken to unfetter the forces of supply and demand. Official announcement that all allocations of steel would cease with the present week, combined with the wiping out of most priorities late last week, practically means the restoration of a free home market except as to prices. The present outlook is that maximum prices are not likely to extend beyond Jan. 1. The war industries board is sending word to various industries that fixed prices expiring Jan. 1 will not be renewed unless extraordinary circumstances dictate. This is taken to mean that the producers or labor must show cause for continuing price control. Cancellations of war tonnages are continuing but the effects now seem to be well discounted. The Emergency Fleet corporation has countermanded 20,000 tons of plates at Cleveland, and 40,000 to 45,000 tons for a ship contract placed with a yard not yet built. This latter tonnage is to be replaced. Shell steel production has eased off gradually, although few mills filling contracts for the American government have received formal instructions to cease work on these orders.

Orders Grow For Export

The most notable new business has been for export. The Italian government is closing for 100,000 tons of plates and 50,000 tons of shapes and is expected to place about an equal amount shortly. From 15,000 to 20,000 tons of ship shapes for Italy have been placed in the east. France continues to distribute some orders. Added importance has been given to these by the estimate of French representatives in the week that from 6,000,000 to 8,000,000 tons of steel annually will be required for several years. Great Britain is inquiring for various materials, including 30,000 tons of skelp and 6500 tons of nails. She also is keeping alive her huge demands for basic iron which it is reported arise from the fact that her steelworks expansion in war times has far outstripped her blast furnace capacity. Export business with other countries is being stimulated by the more liberal granting of licenses to ship by the war trade board. Steel prices for export already are moving away from the fixed war levels and sales in bars, sheets and other lines have been made well above the latter.

Little Iron is Unsold

A surprising situation is disclosed by the present condition of the order books of pig iron producers. In the central district this tonnage represents 92 per cent of the rated output to July. A condition little different is reported in practically all northern territories. These bookings include probably 300,000 to 400,000 tons placed through government allocations for first half war production. The furnaces are maintaining their position that this tonnage is not subject to cancellation and buyers seem to be less insistent in pressing this point. The war industries board has advised that where contracts have been executed the government has no jurisdiction over these transactions. Where a contract has not been passed, however, the board will withdraw the allocated order on the request of the buyer or the seller.

Auto Trade Revives

Domestic steel buyers continue to act conservatively but the miscellaneous tonnages they are releasing has increased steadily. Pleasure automobile builders are in the van of this movement and are placing some fair sized orders. The Ford Motor Co. has ordered parts manufacturers to resume production on a daily basis of 1000 cars, which is to be increased gradually. The manufacturing trade in wire is closing 60 to 90 days ahead and fair sales have been made in plates, sheets and semi-finished material.

NOVEMBER 28, 1918

THE IRON TRADE REVIEW

A weekly publication devoted to the Iron, Steel, Foundry and Metal-working Industries

Published Every Thursday by
THE PENTON PUBLISHING CO., Cleveland

BRANCH OFFICES

CHICAGO - - - - - 1147 Peoples Gas Bldg.
CINCINNATI - - - - - - 128 Opera Place
NEW YORK - - - - - 2203-2206 No. 220 Broadway
PHILADELPHIA - - - - - 1316 Land Title Bldg.
PITTSBURGH - - - - - - 2148-49 Oliver Bldg.
WASHINGTON, D. C. - - - - - 40 Metzerott Bldg.
BIRMINGHAM, ENG. - - - - - Prince's Chambers

Subscription, United States and Mexico, $4 per year. Canada $6, and other Foreign Countries, $8 per year.

Entered at the Postoffice at Cleveland as Second Class Matter

Copyright 1918 by the Penton Publishing Co.

IN THIS ISSUE

PAGE

IRON AND STEEL MARKET REVIEW 1213
EDITORIALS 1214, 1215
IRON AND STEEL PRICES 1216, 1268
INDEX TO MARKET REPORTS 1216
IRON AND STEEL MARKETS 1217
SHELL NEED FOUND FOUNDRIES READY 1227
Methods Developed in American Foundries Possessed Possibilities for the Production of Millions of Semisteel Shell Within a Few Months—How Molding and Casting Work Was Done.
HOW SEMISTEEL SHELL ARE MACHINED 1236
CUBA'S CHROME AND MANGANESE ORES 1238
Deposits Range from 1 to 50 Feet Deep—Slight Headway Has Been Made Toward Increasing the Output—Ancient Mining Methods Prevent Larger Production.
MAKING GUN FORGINGS UNDER WAR DEMANDS 1240
AUSTRALIA SCOTCHES GERMAN TRADE SNAKE 1242
DULUTH CONFIDENT OF GREAT BUSINESS ERA 1243
BRITISH DEMANDS CONTINUE STRONG 1244
ADOPT BRITISH SHIP STEEL STANDARDS 1245
American Steel Makers Take Measures for More Economical Production and Standardization Enabling Them to Compete With Foreign Manufacturers—Recommend Fleet Corporation Issue Order to Shipyards.
PEACE BRINGS FLOOD OF NEW WORK TO WEST 1247
TO PROBE WORK OF FLEET CORPORATION 1248
GOVERNMENT MAY AID RECOVERY OF POTASH 1248
WAR LABOR BOARD TO STAY IN POWER 1250

Staying on the Job

APPRECIATION can be felt for the spirit of restlessness manifested by business men performing government work to return to their regular tasks. Now that peace is in sight they have experienced an extreme lightening of the duties they have been executing so loyally, effectively and silently for their country, and they are anxious to get back to business and take up the problems of reconstruction which each private industry must face.

So far, however, not one section head of the war industries board, for instance, has left the service of the government. Each still is on Uncle Sam's payroll, drawing $1 per year. That particular organization, it is interesting to note, has 251 one-dollar-per-year-men. Chairman Baruch has repeatedly paid the highest compliments to their excellent service, and expressed the deepest appreciation of the sacrifices they have made and are making. He knows, too, how anxious they are to return to their regular business after perhaps first taking a much needed rest. Yet, Mr. Baruch wants them to stay at least until something more comprehensive in the way of a reconstruction program has been worked out. While it would be a vast asset to the nation if all of them could remain until the program actually has been placed in operation, or remain permanently, it is obvious that many of them will not be in a position to do this.

But it is to be hoped that these men of business, section heads and those under them, will remain in the service of the government at least long enough to assist in bringing about a clearer view of the country's reconstruction program. They can assist immeasurably in this task for it would be extremely difficult if not impossible to mobilize such a working organization if the present one were allowed to dissemble. Recognition is given to the fact that retention of their services calls for still greater sacrifices. But their work in connection with the preparation for peace can be considered practically as important as was their splendid efforts in preparing for war and once these plans have been made, to have them pushed through vigorously to supply under the direction of leading business men the fighting men with materials of offense, would be an invaluable asset to the nation.

Just as Great Britain by fortuitous circumstances, found its fleet mobilized and ready for action at the beginning of the war, so this country at the beginning of peace, when commercial questions of the greatest importance are at stake, finds its best business talent organized for concerted national effort. Sympathetic co-operation between government and business, at this time, should be able to put the situation to great common benefit.

Winter Traffic Outlook is Fair

IN what condition will the transportation facilities of the country be this winter? This is the question which is receiving renewed attention in the minds of large manufacturers of the country.

A repetition of last season's failure of the railroad system would be attended by a chain of important effects which might have consequences less disastrous, in a vital sense, than last year when the country was at war, but none the less serious from the standpoint of national welfare.

The trouble with the transportation system last winter was never thoroughly diagnosed, at least not to suit the average manufacturer. A dozen reasons why the roads made a miserable showing were advanced, some of which were: Poor equipment; the inability of the roads to obtain new equipment; shortage of power and bad weather. The traffic manager of a large steel company even went so far as to state that the railroad congestion was caused by a shortage of labor. He pointed out at the time that despite the fact there was a car shortage, much of the congestion was caused by the lack of labor, and consequently many cars were idle.

When the government stepped in and took control of transportation the manufacturer was told to expect better service. For awhile things were about as bad, if not worse. Fuel remained extremely difficult to

obtain; finished products awaited transportation for weeks. Finally as spring and summer arrived the situation somewhat cleared, and up to the present time has been running at a fairly smooth pace.

But will things run as smoothly this winter? Despite the orders for cars, placed by the railroad administration which have been none too generous, the roads have not been receiving new rolling stock at the pace expected. This is regrettable and is bound to be felt within a short time. The percentage of cars in bad order is low and damaged locomotives have been kept in repair to the greatest extent possible. New locomotive production is going ahead at a fair pace. The fuel administration has to some extent relieved the possibilities of a fuel shortage and the co-operation of railroad officials and manufacturers also has been doing a great deal toward freeing the situation of many of its difficulties.

Summed up, the outlook for the coming winter months is fairly good, and trouble, such as was experienced last year, should not occur again. Traffic congestion which may arise can in all probability be laid to the lack of cars and bad weather.

Jobs for All?

THE situation in Detroit and San Francisco with respect to future industrial conditions may be considered as a fairly good indication of the optimistic spirit prevailing in the majority of American cities. In the western city building contracts involving expenditures of $50,000,000, suspended during the period of the war, are about to be released. In Detroit projects requiring $20,000,000 have been started since restrictions on the use of various classes of building material have been removed. From coast to coast American cities are taking stock, not so much for the purpose of finding work for erstwhile war labor but to determine which are the most pressing requirements. The combined estimates run into the hundreds of millions, representing public enterprises which the various municipalities were unable to carry through while war requirements claimed attention.

The Detroit automoble manufacturers who are gradually resuming the manufacture of pleasure cars estimate that there is a shortage of a million of such cars in the United States. The manufacturers say that so far as their city is concerned the return of the soldiers, far from presenting a labor problem will solve one, because of the present shortage of skilled employes. Reports of a similar outlook come from other cities. The manufacturers who are reconverting their plants to peace-time production are waiting for the boys to come home from the trenches to give them jobs. It is not unlikely that this demand for labor will offset to a large extent those releases which will be brought about by the cessation of war work.

Neutral Competition Looms

SINCE the outbreak of the European war, Americans have been considering but slightly to what extent the conflict has increased the industrial activity of the nations which have remained neutral. The industrial activity of this country has by far been greater than that of any other, but this has been due to the fact we have been better prepared to handle great war orders, than were the people of Norway, Sweden, etc. But while America has been making important new strides in the industrial world, the small neutral nations also have not been overlooking their opportunities. Among these nations is Sweden.

The industrial situation of Sweden has shown more improvement since the outbreak of the war than during any period in the past 25 years. She has developed her export trade considerably, especially with the central powers and has increased her shipbuilding facilities, and machinery and metal working industries on a large scale. Germany has depended to a great extent on Sweden for its supply of iron ore and this has been the basis of a profitable trade.

According to department of commerce reports the industrial activity of the country is booming at a rate never equaled in its history. The latest developments in the industries there show that machine shops, foundries, metal working houses and shipbuilding plants are being enlarged and constructed.

Among recent concerns now enlarging, is a machine, foundry and shipbuilding company in Goteberg, which has increased its capital stock from $1,300,000 to $1,800,000. A great business amalgamation in Gavle, is being contemplated by a number of saw mills, about 60 in all, with the view of launching into a large export business. A shipbuilding yard at Landskrona, across the sound from Copenhagen, is at present enlarging its plant which when completed, will according to reports, be the largest shipbuilding plant in Sweden. The harbor is being deepened and a drydock to accommodate 15,000-ton ships is being built. Four large ships now are under construction. The syndication of metal industries in the country is being brought about on a large scale. One large foundry and machine shop, said to be the largest in the country, recently increased its capital 50 per cent and is contemplating the absorption of another similar enterprise.

This is only an example of one neutral's activities, but all the rest are equally busy. With peace conditions again at hand, America must expect a great deal of competition from some quarters which did not have to be reckoned with in former years.

Iron and Steel Prices

Corrected to Wednesday Noon

SCRAP, WAREHOUSE AND IRON ORE PRICES ON PAGE 1268

PIG IRON

Bessemer, valley	$35.20
Bessemer, valley, del. Pittsburgh	36.60
Basic, valley	33.00
Basic, valley del., Pittsburgh	34.40
Basic, delivered eastern Pa.	36.00
Basic, Buffalo, furnace	33.00
Malleable, valley, del. Pittsburgh	35.90
Malleable, Chicago, furnace	34.50
Malleable, Buffalo, furnace	34.50

GOVERNMENT SCHEDULE

1.75 to 2.25 silicon (No. 2 foundry, No. 2 plain, and No. 3 southern), $34 furnace is base.

2.25 to 2.75 silicon (No. 2X, No. 1 Northern foundry, and No. 2 southern), base plus $1.25 or $35.25 furnace.

2.75 to 3.25 silicon (No. IX) base, plus $3.00 or $37 furnace. 3.25 to 3.75 silicon base, plus $5 or $39 furnace.

3.75 to 4.25 silicon, $40.00, plus $1 for each ½ per cent of silicon up to 5.75 per cent.

No. 1X, eastern delivered Phila.	40.90
No. 2, valley del., Pittsburgh	35.40
No. 2 foundry, Cleveland furnace	34.00
No. 2 foundry, Ironton furnace	34.00
No. 1 foundry, Chicago furnace	35.25
No. 2 foundry, Chicago furnace	34.00
No. 2X, eastern del., Phila.	39.15
No. 2X, eastern, N. J. tidewater	39.55
No. 2X foundry, Buffalo furnace	35.25
No. 2 plain, del. Philadelphia	37.90
No. 2 plain, N. J. tidewater	38.30
No. 2 southern, Birmingham	35.25
No. 2 southern, Cincinnati	38.85
No. 2 southern, Chicago	40.25
No. 2 southern, Phila.	41.75
No. 2 southern, Cleveland	40.25
No. 2 southern, Boston	43.25
No. 2 southern, St. Louis	39.50
Virginia, No. 2X, furnace	37.50 to 38.50
Virginia, No. 2X, Phila.	41.85
Virginia, No. 2X, Jersey City	42.15
Virginia, No. 2X, Boston	43.25
Gray Forge, valley, del. Pittsburgh	34.40
Silveries, 8%, furnace	47.50
Ohio Silveries, 8%, Chicago	51.30
Tennessee Silveries, 8%, Chicago	52.50
Low phos, standard, Phila.	57.00
Low phos, Lebanon, furnace	51.00 to 53.00
Low phos, standard, Pittsburgh	54.40
Charcoal, Superior, Chicago	38.70 to 39.00
Charcoal, Superior, Buffalo	38.50
Charcoal, southern to 2 per cent silicon, furnace	51.00

COKE

(At the ovens)

Connellsville furnace	$6.00
Connellsville foundry	7.00
Pocahontas furnace	8.00
Pocahontas foundry	8.00
New River foundry	8.00
New River furnace	8.00
Wise county furnace	7.25
Wise county foundry	8.25

FERROALLOYS

Ferromanganese, 70 per cent delivered	250.00
Spiegel, 16 per cent fur., spot	70.00
Spiegel, contracts, furnace	70.00
Ferrocarbon, titanium, carloads, maker's plant	200.00
Ferrosilicon, 50 per cent, spot and contract, delivered	150.00 to 160.00
Bessemer ferrosilicon, 10 per cent	57.00
Bessemer ferrosilicon, 11 per cent	60.38
Bessemer ferrosilicon, 12 per cent	63.60

Ferrosilicon prices at Ashland, Ky., Jackson and New Straitsville, O.

SEMIFINISHED MATERIAL

BILLETS AND BLOOMS

Open-hearth, Pittsburgh	$47.50
Open-hearth, Philadelphia	51.50
Open-hearth, Youngstown	47.50
Bessemer, Pittsburgh	47.50
Bessemer, Youngstown	47.50
Forging, Pittsburgh	60.00
Forging, Philadelphia	64.00

SHEET BARS

Open-hearth, Pittsburgh	$51.00
Open-hearth, Youngstown	51.00
Bessemer, Pittsburgh	51.00
Bessemer, Youngstown	51.00

SLABS

Pittsburgh and Youngstown	$50.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$57.50
Grooved skelp, Pittsburgh	2.90c
Sheared skelp, Pittsburgh	3.25c

SHAPES, PLATES AND BARS

(In cents per pound)

Structural shapes, Pitts.	3.00c
Structural shapes, Phila.	3.245c
Structural shapes, N. Y.	3.27c
Structural shapes, Chgo.	3.27c
Tank plates, Chicago	3.52c
Tank plates, Pittsburgh	3.25c
Tank plates, Philadelphia	3.495c
Tank plates, New York	3.52c
Bars, soft steel, Pittsburgh	2.90c
Bars, soft steel, Chicago	3.17c
Bars, soft steel, New York	3.17c
Bars, soft steel, Phila.	3.145c
Bar iron, common, Phila.	3.745c
Bar iron, common, Chicago	3.50c
Bar iron, refined, Chicago	5.00c
Bar iron, common, Cleveland	3.67c
Bar iron, common, New York	3.77c
Bar iron, common, Pittsburgh	3.50c
Bar iron, refined, Pittsburgh	5.00c
Hard steel bars, Chicago	3.00c

RAILS, TRACK MATERIAL

Angle bars, Pittsburgh base	3.25c
Angle bars, Chicago base	3.25c
Standard bessemer rails, mill	$55.00
Stand. open-hearth rails, mill	57.00
Light rails, 25 to 45, mill	3.00c
Relaying rails, light, St. L.	60.00 to 67.00
Spikes, railroad, Pitts.	3.90c
Track bolts, Pittsburgh	4.90c
Track bolts, Chicago	5.115c
Tie plates, Chicago	3.25c

WIRE PRODUCTS

(Per 100 lbs. to jobbers; retailers 5c more)

Wire nails, Pittsburgh	$3.50
Coated nails, Pittsburgh	3.45
Plain wire, Pittsburgh	3.25
Galvanized wire, Pittsburgh	3.95
Polished staples, Pittsburgh	3.65
Galvanized staples, Pittsburgh	4.35
Barb wire, painted, Pitts.	3.65
Barb wire, galvanized, Pitts.	4.35
Cut nails, Pittsburgh	5.00

CHAIN, PILING, STRIP STEEL

(In cents per pound)

Chain, 1 in. proof coil, Pitts.	7.50c
Sheet piling, base, Pitts.	4.00c to 5.00c

Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100 inch and heavier, base per 100 pounds, 6.50c.

Market Report Index

	Page
Weekly Market Review	1213
Pig Iron	1217
Wire	1219
Coke	1219
Scrap	1220
Sheets	1221
Ore	1221
Tin Plate	1221
Nuts, Bolts and Rivets	1222
Bars	1222
Plates	1222
Structural Shapes	1223
Semifinished Steel	1224
Cars and Track Materials	1224
Ferroalloys	1224
Nonferrous Markets	1228
Coke By-Products	1255
Machine Tools	1256

SHEETS

(In cents per pound)

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c
No. 28, open-hearth, Chi.	5.27c

TIN MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c

GALVANIZED

No. 28, open-hearth, Pitts.	6.25c
No. 28, bessemer, Pitts.	6.25c
No. 28, open-hearth, Chi.	6.52c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	4.25c
No. 10, bessemer, Pitts.	4.25c
No. 10, open-hearth, Chi.	4.52c
No. 10, open-hearth, Phila.	4.495c

TIN PLATE

(Per 100 lb. box)

Tin plate, coke base, Pitts.	$7.75

IRON AND STEEL PIPE

Base Pittsburgh

Base, Pittsburgh	Black Per cent off	Galv. Per cent off
⅜ to 3 in., butt, steel	51	37½
¾ to 3 in., butt, iron	33	17

BOILER TUBES

Steel, 3½ to 4½ inches, l. c. l.	30
Iron, 3½ to 4½ inches, c. l.	12½

CAST IRON WATER PIPE

Without War Freight Tax

(Class B Pipe)

Class A pipe is $1 higher than Class B.

Four-inch, Chicago	69.80
Six-inch and over, Chicago	66.80
Four-inch, New York	70.70
Six-inch and over, N. Y.	67.70
Four-inch, Birmingham	63.00
Six-inch and over, Birmingham	60.00

HOOPS, BANDS, SHAFTING

Hoops, Pittsburgh	3.50c
Bands, Pittsburgh	3.50c
Hot rolled strip steel, Pitts.	3.50c
Hot rolled strip steel, Pitts. stamping quality	4.00c
Shafting, Pitts., carloads	17 off to list
Cotton ties, Nov., per bundle	$1.97

RIVETS

Structural rivets, Pittsburgh	4.40c
Boiler rivets, Pittsburgh	4.50c
Rivets 7/16 in. and small., Pitts.	50 and 10 off

NUTS AND BOLTS

(Prices f. o. b. Pittsburgh)

CARRIAGE BOLTS

(⅝ x 6 inches, smaller and shorter)

Rolled thread	50-5 off
Cut thread	40-10-5 off
Larger and longer	40 off

MACHINE BOLTS

(⅝ x 4 inches, hot pressed nuts)

Rolled thread	50-10-5 off
Cut thread	50-5 off
Larger and longer	40-10 off
Cold pressed semifinished hexagon nuts ⅝ in. and larger	60-10-10 off
Cold pressed semifinished hexagon nuts ⅞ in. and smaller	70-5 off
Gimlet and cone point lag screws	50-10 off

NUTS

Hot pressed, square blank	2.50c off
Hot pressed, square tapped	2.30c off
Hot pressed, hexagon blank	2.30c off
Hot pressed, hexagon tapped	2.10c off
Cold pressed, square blank	2.25c off
Cold pressed, square tapped	2.00c off
Cold pressed, hexagon blank	2.25c off
Cold pressed, hexagon tapped	2.00c off

Prices Present and Past

(Yesterday, a month ago, three months ago and a year ago)

Quotation on leading products November 27, average for October, 1918, average for August, 1918, and average for November, 1917. Prices are those ruling in the largest percentage of sales at the dates named.

	Prices Nov. 27, 1918	Average prices Oct. 1918	Aug. 1918	Nov. 1917
Bessemer, valley del., Pittsburgh	$36.60	$36.60	$36.60	$37.25
Basic, valley del., Pittsburgh	34.40	34.40	33.40	33.95
*No. 2 Foundry, Pittsburgh	35.40	35.40	34.40	33.95
*No. 2 Foundry, Chicago, furnace	34.00	34.00	33.00	33.00
Lake Superior charcoal, Chicago	38.70	38.70	37.70	37.50
Malleable, valley	34.50	35.90	34.90	34.45
Malleable, Chicago	34.50	34.50	33.50	33.37
**Southern, No. 2, Birmingham	35.25	35.25	33.50	33.50
*Southern Ohio No. 2, Ironton	34.00	34.00	33.00	33.00
Basic, eastern del., eastern Pa.	36.90	36.60	32.00	33.00
**No. 2X Virginia, furnace	38.00	37.50	33.50	33.50
**No. 2X, eastern del., Philadelphia	39.15	38.85	34.50	34.00
Ferromanganese, 70%, delivered	250.00	250.00	250.00	247.00
Bessemer billets, Pittsburgh	47.50	47.50	47.50	47.50
Bessemer sheet bars, Pittsburgh	51.00	51.00	51.00	51.00
Open-hearth sheet bars, Pittsburgh	51.00	51.00	51.00	51.00
Open-hearth billets, Pittsburgh	47.50	47.50	47.50	47.50
Steel bars, Pittsburgh	2.90	2.90	2.90	2.90
Steel bars, Chicago	3.17	3.17	3.17	2.90
Iron bars, Philadelphia	3.745	3.73	3.73	4.33

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Prices Nov. 27, 1918	Average prices Oct. 1918	Aug. 1918	Nov. 1917
Iron bars, Cleveland	$ 3.64	3.64	3.64	3.64
Iron bars, Chicago mill	3.50	3.50	3.50	4.10
Beams, Chicago	3.27	3.27	3.27	3.00
Beams, Pittsburgh	3.00	3.00	3.00	3.00
Beams, Philadelphia	3.245	3.23	3.23	3.18
Tank plates, Pittsburgh	3.25	3.25	3.25	3.25
Tank plates, Chicago	3.52	3.52	3.52	3.25
Tank plates, Philadelphia	3.495	3.48	3.48	3.43
Sheets, blk., No. 28, Pittsburgh	5.00	5.00	5.00	5.30
Sheets, blue anld., No. 10, Pittsburgh	4.25	4.25	4.25	4.60
Sheets, galv., No. 28, Pittsburgh	6.25	6.25	6.25	6.50
Wire nails, Pittsburgh	3.50	3.50	3.50	3.50
Connellsville furnace coke	6.00	6.00	6.00	6.00
Connellsville foundry coke	7.00	7.00	7.00	6.60
Heavy melting steel, Pittsburgh	28.50	29.00	29.00	29.60
Heavy melting steel, eastern Pa.	28.50	28.50	28.50	27.50
Heavy melting steel, Chicago	29.00	29.00	29.00	28.50
No. 1 wrought, eastern Pa.	34.00	34.00	34.00	35.70
No. 1 wrought, Chicago	30.50	33.50	33.50	34.35
Rerolling rails, Chicago	34.00	34.00	34.00	35.70

(FOR ADDITIONAL PRICES SEE PAGE 1268)

Pig Iron Shows Strong Undercurrent

Orders Booked Including Allocations Leave Little Free Tonnage for First Half—Makers Hold Firm Against Cancellations—Requests for Revocations Less Insistent—Consumers More Disposed to Hold to Contracts—Basic Short

Cleveland, Nov. 26.—Sales made during the past several weeks, both before and after the signing of the armistice, added to the tonnage already on the books of the makers, have produced a very strong statistical condition of the market in this territory. This was brought out at the meeting of the central district of the American Pig Iron association in Cleveland last week, at which reports showed that 92 per cent of the production of the territory, representing approximately 33⅓ per cent of the merchant output of the entire country, had been sold up. Although a few extensions had been made, cancellations were negligible. Certain makers who have offered iron in recent weeks have been much surprised at the buying response. These sales total a large tonnage of various grades. Other makers who some weeks ago had sold round tonnages for first half subject to government requirements and have only a small unsold fraction continue to close some business. One of them in the week booked 7000 tons of foundry for first half, the government price or the last government price to prevail. Offerings generally are comparatively light and buyers have found it difficult to obtain early metal. It is appreciated that orders allocated or taken direct for war work enter largely into the present statistical position of the market, but makers are insisting that these represent noncancellable business and will insist upon the tonnage being taken even though some extensions of delivery may be necessary. About 70 to 80 additional allocations, calling for 32,000 tons were made in the week. These were principally for the railroad and food administration and included 10,000 tons of low phosphorus, 8000 tons of basic, 11,000 tons of foundry, 1000 tons of malleable and 800 tons of charcoal. The basic went to an eastern railroad equipment manufacturer. About 35 new requests are outstanding one of which curiously is from the ordnance department and calls for 12,000 tons of foundry for the first four months of 1919. Allocations since May 1 total 1,847,000 tons. It is thought likely that allocations of iron will cease Dec. 1. The steel director, however, has advised producers that November reports covering production, sales, distribution, etc., are necessary and it is urged that this information be forwarded by Dec. 10.

Want Low Freight Iron

New York, Nov. 25.—Another phase of the readjustment of the pig iron market from a war to a peace basis became apparent during the past week in the form of requests from consumers upon southern blast furnaces for the cancellation of tonnages due for forward delivery. Now that war conditions are beginning to be relieved, consumers are anxious to obtain their iron from nearby furnaces as far as possible and they object to paying the high freight rate differential entailed in the delivery of southern iron to their plants.

Outside of these requests there has not been manifested any noticeable desire on the part of consumers to cancel pig iron tonnages which are due them on contracts. To prepare for any eventualities which may develop, however, sellers are to exchange views on the subject of cancellation requests at a meeting of the Merchant Pig Iron Distributors' association to be held in Philadelphia, Dec. 2.

The only activity in this market at present is comprised of export inquiry. Miscellaneous inquiries now pending aggregate at least 15,000 tons. One New York export house has had out a rather indefinite inquiry for 100,000 tons. While it is not known what percentage of this tonnage actually will be bought, the sellers are not inclined to believe all of this inquiry will result in business, at least immediately. Current export inquiries involve mainly foundry, although one round tonnage of bessemer is wanted. In numerous cases prospective export buyers have obtained licenses for exporting round tonnages of foundry, but they are having

difficulty in locating the iron for early shipment.

Very little domestic demand features the market. Only one furnace is known to have made any extensive sales and these involve foundry iron for first half on which verbal commitments previously had been made and for which contracts now have been signed. There are indications that pig iron supply shortly will become larger at least in some directions. One large eastern Pennsylvania steelmaker, for instance, expects shortly to have considerable tonnages of bessemer and foundry iron to offer due to the expected cessation of work on shell steel contracts. At least two furnaces which previously had not booked any tonnage for first half now are seeking orders for foundry for this position. At the present time the market is barren of first half demand but a number of consumers say they expect to place orders for that period before the end of December.

Trade Still Marking Time

Pittsburgh, Nov. 26.—Demand for iron still is absorbing production; indeed, the amount of iron wanted still exceeds the output and because of this situation, the trade here is facing the future with confidence and little disposed to lend ears to talk of lower prices. This is not saying, however, that a well defined effort to obtain supplies at lower prices does not exist. Actually, several offers have been made at slightly below the market, but they have been turned down as promptly as they have been made. In the way of actual business, a Cincinnati house is credited with having sold 1000 tons of bessemer for December delivery to a Pittsburgh district consumer. No details as to prices are provided, but the common understanding is that the transfer was at the government price. It is reported here that another Cincinnati house sold 1000 tons of foundry for export and that both the export license and the shipping space had been secured. This tonnage is understood to be for South America. On the whole, it must be said that the pig iron trade here is marking time, as far as any considerable new domestic business is concerned. Readjustment to a peace basis is something that is not to be accomplished over night and until this matter has progressed further, there is bound to be some hesitancy on the part of consumers. Meanwhile, sellers find occasion for confidence in the disclosure at the recent meeting of the producers at Cleveland, which brought out the fact that so much of the first half of 1919 production already had been contracted for. There have been attempts to cancel allocations of iron, but producers continue to refuse to give ear to such appeals, those making them being directed to Washington, not only on the ground that the order was placed through Washington, but also because it is believed that the national authorities should know of the disposition of tonnages so long as any semblance of federal control exists.

Furnaces Still Hard at Work

Buffalo, Nov. 26.—Buffalo furnacemen are awaiting what the first of the year will bring forth, particularly the possible changes in prices at the revision Jan. 1. They do not, however, believe the revision will be radical. Although most of the furnaces are proceeding only with their present business covering them until past the first of the year, one furnace is actively in the market for the first half and has considerable capacity to dispose of. Thus far this capacity has been taken advantage of only to the extent of about 2000 tons, placed during the past week. This maker reported inquiry as fairly brisk. The belief prevails that inquiry will develop strongly as the weeks pass. It is pointed out that Germany is out of the continental market as a producer of iron, and although France may take Germany's place eventually as the iron producer of the continent, it is conceded France must first rebuild her plants. Meanwhile, American iron will go to France and some American producers are making plans to engage in foreign trade for the first time in their history. Furnaces generally here are not seeking business. They are still hard at work on government contracts which have not been cancelled. Production is 100 per cent although the plants are short of labor and coke.

Iron Contracts Beyond Government Control

IN reply to the question raised by various consumers and producers of pig iron, Steel Director Replogle has advised that where iron has been allocated under government direction and formal contracts have been exchanged and executed between buyers and sellers, the war industries board ceases to have any jurisdiction over the transaction. This point has become of much importance to buyers and sellers in view of its relation to the question of cancellation where iron has been allocated. Director Replogle states that any question arising as to the disposition of the tonnage on order shall be settled between the parties to the contract themselves in accordance with usual commercial practice. Where no contracts have been passed, the government will withdraw the allocated orders at the request of either the buyer or the seller.

Uncertainty is Prevalent

Cincinnati, Nov. 25.—Indefinite reports have been circulated here that government prices will continue at least through the first quarter, causing a great deal of uncertainty. The foundries have no inclination to gamble on the future and some of them are asking that shipments on their contracts be held up. So far comparatively few cancellations have been asked for, but a spirit of uneasiness as to future conditions is prevalent. Some high silicon iron was sold recently, the tonnage being distributed mostly to plants which desire to use this iron with scrap. No inquiries are noted, except those of a perfunctory nature to keep in touch with market conditions.

No Pessimism at St. Louis

St. Louis, Nov. 23.—The attitude of both buyers and sellers in the pig iron market is one of waiting, although the latter are apparently willing to do business to the extent of their capacity. A surprising feature under the circumstances is the absence of pessimism. Despite the radically changed conditions, the trade seems satisfied with the situation. Producers and selling agencies report a volume of inquiry, although it is admitted no large orders have been received. Opinion among furnace interests is that the government will retain control until April or May by which time present stocks in the hands of melters will be nearly used up. Meantime, the process of readjustment will develop a demand which will be able to take up production. There is hardly a dissenting voice to the view that next year may witness sharp price reductions but it is believed that this will not occur until the bulk of the iron bought at war prices has been worked off. From what can be learned the leading plants of nonwar character have booked an enormous business on which they will begin work the minute iron can be obtained.

Production Continues Active

Birmingham, Ala., Nov. 25.—Production and delivery of pig iron continues active. Few cancellations of contracts are reported and inquiry is brisk. Furnace raw material still lags and it is impossible to say when furnace operations will be increased. The consensus of opinion among makers is that there will be no need for selling for future delivery at a price under the present schedule. No further allocation of business is noted.

Optimistic Views Prevail

Philadelphia, Nov. 26.—Decidedly optimistic views prevail among pig iron sellers and producers in this district. While most consumers who have not closed for the first half of 1919 prefer to wait before taking action, a number have made purchases. Total sales of all grades in this district during the week were at least 15,000 to 20,000 tons. The few companies which requested cancellation last week now show more confidence in most cases. One of these consumers has requested that deliveries be rushed. All signs point to a shortage in all grades, at least for the next two months. A leading eastern platemaker is short 25,000 tons of basic for December and has located some iron with difficulty. It is rumored one steelmaker is offering to resell a first half basic contract, but this has not been verified. It is expected that the marketable supply of steelmaking iron for the first half will be larger. One leading eastern interest by reason of the stoppage of shell steel contracts will have much basic and bessemer to sell. Foreign inquiries now current include 8000 tons of bessemer, 7000 tons of low phosphorus and much foundry. The war industries board has sent out a letter advising that where tonnages allocated were put under contract

between the buyer and the seller these contracts are binding the same as in any commercial transaction. Where no contract has been made the board states it will withdraw the allocated orders on the request of the buyer or the seller. Some furnaces object to this attitude saying they have considered allocations as obligatory and that upon receiving them they withdrew these tonnages from their market offerings. Producers of low phosphorus iron still are unable to sell without the approval of the war industries board, but expect that restriction will be withdrawn soon. However, they are not much concerned since 95 per cent of their first half output now is contracted for. Only two eastern furnaces now are known to be offering first half foundry iron. The rest in a few cases are accepting some orders at the solicitation of regular customers.

Stacks Sold Far Ahead

Chicago, Nov. 26.—Producers of pig iron in the Chicago district are much surprised and gratified at the steadiness with which the market is meeting changed conditions due to the end of the war. After the first hysteria had passed and melters had opportunity to take stock of the situation, the desire to cancel seems to have disappeared in large measure. While some requests are being received for cancellation, nothing definite has been done relative to them and it is believed the tonnage which eventually will be removed from books will be small. Some of the iron allocated for strictly war purposes and which cannot be used by the melter in his ordinary work probably will be taken care of by cancellation. This tonnage is believed to be extremely small. On the other hand, many manufacturers are shifting their business back to the prewar basis with comparatively little jar and have notified producers they will take the full tonnage for which they contracted. In a few cases producers have been asked to accept orders against first quarter purchases. The leading interest finds its contracts almost sufficient to cover first half production and in a few cases contracts cover deliveries over the entire year. Stovemakers are returning to their regular work and are taking their iron as fast as it is delivered. Furnace yards are practically bare. As a rule foundries also have no stocks. Under these circumstances, it is expected that the market will remain firm. No objection is being made on the part of melters to the present price and contracts for the most part bear the usual provision for government price regulation and also that in case fixed prices are dropped the last fixed price shall govern. Zenith furnace at Duluth is out for relining and is expected to resume about Dec. 1. Several other merchant stacks in this district are running on poor linings, and it may be necessary at any time to blow out and reline. Buying at present is not heavy, inasmuch as most melters are fairly well covered for first half. Basic is difficult to obtain. In some cases basic users have asked that if possible they be accommodated by shifting tonnage from any cancellations.

Coke Supply Drops Sharply

Recurrence of Influenza Causes Slump in Production of Mines—Furnaces in Difficulties and Banking of Six Corporation Stacks Forced

Pittsburgh, Nov. 26.—Full effects of the recurrence of the influenza epidemic on the supply of coke now are being felt. Coal production has fallen low as a result of the sickness among the miners and this situation finds full reflection in the production of coke. Because of a shortage of fuel, no less than six of the furnaces of the Steel corporation have had to be banked and reports about merchant furnaces are equally bad, cases of reduced blast being numerous, while actual banking has been resorted to in two or three instances. The corporation now has 10 of its 59 furnaces down, there being four out for relining and repairs in addition to the six that are not producing for want of fuel. Some decrease in the production of iron will result from the enforced curtailment of operations but that the loss will be serious is doubted. Late reports do not suggest that the epidemic has yet been halted and fear at the moment is strong that a repetition of last winter's conditions is at hand. Transportation conditions are slightly improved but this development does not help the general situation much in view of the big cut that the sickness has caused in production. New business in coke is small, for consumers seem to believe that lower prices will come with the proclamation of peace, which ends government control of fuel supplies and prices, and are going slowly. A considerable tonnage of furnace coke for first half of 1919 has been booked, however, and it is understood that the great majority of such contracts are the government price of $6 ovens and that they carry through to completion at this figure regardless of the ending of government control. Foundry interests are better off in the matter of supplies than are the iron producers. Production of coke in the Connellsville region for the week ended Nov. 16, was 259,930 tons, against 279,650 tons in the previous week, according to *The Connellsville Courier*.

Production is Holding Up

Cincinnati, Nov. 25.—Reports of cancellations of contracts in this district are without foundation. Some shipments have been held up by foundries which are not consuming the usual amount of coke, but the foundries are not willing to take chances on being without fuel during the winter season when transportation difficulties may develop. No new contracts are reported and no business is in sight.

Broad and Active Demand

St. Louis, Nov. 23.—The demand for coke continues active and broad, and those who looked for a slump at the end of the war have been disappointed so far as this district is concerned. There is less hesitancy among coke consumers than in any branch of the steel and iron industry in the matter of buying. While contracting for the first half of 1918 has subsided to some extent many large consumers who have closed for that period on a basis of this year's consumption have been seeking additional tonnages to supply augmented needs. There is a decided disposition to accumulate, but thus far little in that direction has been accomplished.

Careful Buying

Continues in Wire Products—Great Britain Wants Many Nails

Pittsburgh, Nov. 26.—Lifting of the bars on jobbers' requirements of wire and wire products has not been followed by any great rush on the part of these interests to load up. Most makers have carried throughout the entire period of the restrictions a considerable quantity of business placed by the jobbers which goes as far back in some cases as 1916, and now that the steel supply is available, they are filling these orders. These, with small new purchases, are keeping the warehouse interests amply covered. There seems to be some lack of confidence in present prices on the part of domestic buyers and they consequently are merely ordering such tonnages as they believe they can readily dispose of. Fair sized export deals are reported, a Pittsburgh district maker having moved 1200 tons of a miscellaneous assortment for shipment to South America. An inquiry for 6500 tons of nails for shipment to Great Britain also has come on the market.

Jobbers Buy Wire

New York, Nov. 25.—Wire manufacturers continued to receive good sized orders from jobbers during the past week for all kinds of wire products with the exception of barbed wire. Owing to the coming of winter occasional orders for the latter product are being cancelled, since jobbers do not care to stock up now with barbed wire for next spring at present prices. Large inquiries are out for wire products of all kinds. In some cases mills have quoted 5.60c, Pittsburgh, on barbed wire for export, the fixed government price on which is 3.65c, Pittsburgh.

Manufacturers are Buying

Cleveland, Nov. 26.—A fair amount of miscellaneous wire business continues to be done in this territory by different sellers as practically all producers continue to offer material. The principal buying is of plain wire by the manufacturing trade. There is also some buying of barbed wire and nails by the jobbers. The warehouses have had such a small opportunity to purchase any barbed wire for some months that they now are getting some tonnage in hand. Generally, however, the jobbers are buying cautiously. Some sellers are taking business at government prices without provision for revision; others are stipulating that the price in effect at shipment shall rule.

Scrap Prices Still Settle

Downward Movement Continues as Buying Drags—Cancellations Are More Numerous—Consumers Play Waiting Game

FOR COMPLETE SCRAP PRICES SEE PAGE 1268

Chicago, Nov. 26.—In a market generally weak and with melters of scrap in some instances having difficulty to find buyers, those grades used in open hearths are consistently maintaining their position at the government maximum. The steel producer, not having met any reduction in its output as a result of peace, still is in need of material and although there is not much demand at present from the consumer, dealers are taking all offerings of steel to apply on short sales. Outside this class of scrap most grades are decidedly lower and reductions of $1 to $2 are being made from time to time. Foundry and rolling mill grades especially are weak and consumers are taking comparatively little. Rerolling rails have been sold short to some extent and these also are maintaining the government maximum. Larger tonnages are coming out now, as has been the case for many weeks. The Rock Island has 1500 tons of old rails in its current list, the largest offering of this form of scrap in many months. The Chicago, Rock Island & Pacific offers 3800 tons, including 400 tons of No. 1 wrought, 500 tons of No. 2 wrought and the rerolling rails just referred to. The Michigan Central is offering an open list in which tonnages are not mentioned.

No Improvement Noted

Pittsburgh, Nov. 26.—Conditions in the scrap market here continue unsettled with hardly enough business going on upon which to base prices. Both the mills and the dealers continue to cancel contracts where they can and the inspection on shipments is so rigid as to lead to a good many more rejections than ordinarily take place. The American Board of Scrap Iron Dealers has sent out a circular to the trade, in which it announces that present government maximum prices will hold until Dec. 31. What may be done thereafter in the matter of prices, the statement does not pretend to forecast. The circular urges dealers to try to complete contracts before that date and asks dealers to go on record if the mills seem to cause any unusual delays or hindrances to deliveries. If it is found that, through no fault of the dealer or if the mill in some way has prevented deliveries, an extension of the time of shipments beyond the date specified in the contract for a period equal to that occasioned by the delay, will be asked and material will be billed at the prices specified in the contract. Dealers also are warned not to ship any material that is not strictly up in grade to what the contract specifies. The Pennsylvania railroad lines east is asking bids on 2000 gross tons of unclassified scrap, which may consist of cut and uncut material of miscellaneous character. The road also is offering the scrap from 300 or 400 cars which were destroyed at the recent fire and explosion at South Amboy, N. J.; also 75 carloads of this same scrap now loaded near its Trenton, N. J., shops. The fact that the road in making these offerings does not agree to sort and grade it, is taken to mean that there has been a change in its method of marketing its scrap. Formerly, all offerings were cut and graded; evidently, the labor for such work is not available.

Cancellations on Increase

New York, Nov. 25.—Trading in the New York scrap market is now being confined almost entirely to the efforts of brokers and dealers in covering on old contracts. The majority of these interests have little material on hand, and find it necessary to keep in the market. Consumers generally are playing a waiting game, and are cancelling material more freely now than at any time since the cessation of hostilities. This action is being taken in cases where deliveries are not being made up to schedule and where the material falls short of specifications. The volume of scrap being cancelled at the present time is said to be considerable. A development of the past few days has been the marked falling off in the demand for cast scrap. One seller offered a sizable tonnage to more than a half dozen foundries without getting a bid. The market on No. 1 heavy cast is now holding nominally at $30.50 to $31, f.o.b. New York. Several other grades continue to decline. Dealers now are able to obtain heavy melting steel at $23.50 to $24, and stove plate and grate bars at $25. The drop in borings and turnings has apparently been checked for the present. An interesting development of the past few days has been the tendency on the part of some steel mills to offer scrap for resale owing to the possible early cancellation of the war work in which they are engaged.

Market Unsettled; Little Buying

Buffalo, Nov. 26.—The market is very unsettled, with little buying on the part of mills, although prices are lower. Most of the business that is being done is that between dealers to fill old orders. There is a scarcity of heavy melting steel, cast scrap and heavier scrap, and they are hardly available at any price. Heavy melting steel is not bringing over $29 among dealers. Since consumers are waiting for the prospective January price revision, the market in all grades promises to remain unsettled. No. 1 railroad wrought now rules from $31 to $32; No. 1 railroad cast from $32 to $33; iron and steel axles from $42 to $43; car wheels at $29 maximum; railroad malleable from $32 to $33; machine shop turnings from $17 to $18; heavy axle turnings from $23 to $24; cast borings from $17 to $18; iron rails from $34 to $35; grate bars from $24 to $25; stove plate from $25 to $26; wrought pipe from $27 to $28; No. 1 bushelling from $27 to $28; bundled sheet stamping scrap from $22 to $23. There are no large tonnages of the principal scraps on the market.

Steel Sells Lower

Cleveland, Nov. 26.—The scrap iron and steel market here has deteriorated wholly into a dealers' one, consumers for the time being absolutely refusing to buy. But once a clew to first quarter of 1919 conditions is apparent, and one is expected to develop at the meeting of iron and steel men in Washington, Dec. 11, dealers expect contracting will be renewed. Scrap piles of consumers are being depleted, with shell steel production unabated to any extent. The scrap changing hands is that required by brokers and yards on contracts. Melting steel no longer commands the government maximum of $29 and has brought as low as $28. Probably $28.50 is nearer the correct quotation at present but only a few carloads have been traded in. A fair price for borings and turnings is $18 to $18.50. Some dealers contend that were government price fixing to be ended immediately scrap prices would go up. It is claimed scrap is no more plentiful now than for a month past. Dealers are rushing deliveries in the effort to get as much high-priced scrap shipped as possible before contracts expire.

Shipments Are Rushed

Cincinnati, Nov. 25.—The action the war industries board may take for controlling prices after Dec. 31 is causing much speculation. Word has been passed along to send forward shipments as fast as possible and to make formal protests when delays occur. Dealers seem willing to make prompt sales below market quotations. That there is no concerted movement in this direction is indicated by the abnormal range of selling prices. That there may be no chance for rejection, special care is taken in grading scrap. Dealers do not seem anxious to carry over any more yard stocks than necessary to fill the immediate requirements of customers.

Trend of Prices Downward

St. Louis, Nov. 23.—The market for scrap iron and steel has lapsed into apathy, with a general waiting attitude on the part of both buyers and sellers. The trend of values continues decidedly downward, but after the sharp price revisions last week only minor changes in the lists were made in the past few days. The fact is that it is difficult to arrive at accurate prices, sales having been made at figures unusually wide apart. There is no market at the moment, leading consumers refusing to listen to offers. Activities are confined principally to dealers who are taking material arriving to fill contracts. Speculation has returned in greater volume than at any time since war conditions set in, with the selling position being the favorite one. The easing up in pig iron supplies is one reason given for lower scrap prices and the fact that leading consumers are out of the market also is a factor. Cancellation of munition contracts is beginning to work back to

the mills, which in recent months have been liberal buyers of scrap. This effect it is believed will be only temporary as these plants have business on their books of a nonwar character which will keep them busy for several months. On the other hand, they are covered on scrap well into next year and are not buying. Both mills and foundries are tightening up on specifications and time of delivery.

Southern Prices Drop

Birmingham, Ala., Nov. 25.—The scrap iron and steel market in the South appears demoralized, with further downward changes in quotations. The only material being delivered is on contracts taken weeks ago. Consumers are buying only sufficient material for immediate needs and are making the price. Dealers are buying enough scrap to keep up their assortment and to meet contracts. Not until peace negotiations and industrial readjustments are completed will the market return to normal, southern dealers believe. Plants using scrap still are in full operation and must in a short time buy more freely. There is no intimation, however, that any contracts will be made. Prices on some material are from $2 to $4 under what they were six weeks ago. The quoted schedule of prices is considered as only nominal.

Heavy Grades Are Lower

Philadelphia, Nov. 26.—Very little demand is current for scrap. No consumers or dealers are willing to pay maximum prices. One mill bought 1000 tons of heavy steel at $27, delivered, last week and the market now is nominal at $26.50, delivered. Wrought pipe, new specifications, is at $31, delivered, blast furnace turnings at $18, No. 1 forge and bundled sheets at $26.50, at which sales were made. No. 1 busheling and ungraded wrought pipe undoubtedly are much lower than maximum, but untested belief prevails in the scrap trade that no scrap buying movement will develop until finished steel prices reach bottom, whenever and whatever that proves to be.

Dull Season

Causes Light Sales in Tin Plate—To Open Books Soon

Pittsburgh, Nov. 26.—Although makers of tin plate have received no increase in the allotment of sheet bars, and current mill operations are not much better than 65 per cent of capacity, no difficulty is being experienced in meeting all present requirements. This may be explained by the fact that the can manufacturers as a class are well supplied with plate and such demands as are coming to them do not necessitate further purchases. Shipments against the requirements for packing baked beans, of nonperishable foods and other purposes are not taking the production. Tin plate manufacturers have not yet opened their books for the needs of next spring, but will probably do so before long. A larger supply of tin bars is expected to be available long before operations on these requirements start.

Export Buyers Ask Sheets

Liberal Inquiries Coming to Mills from Various Countries—France to Buy Tonnage—Sales at Higher Prices—Home Buying Reserved

Youngstown, O., Nov. 27.—Inquiry for sheets, especially black and galvanized, is extremely heavy throughout the valley. In nearly every case the buyer asks for immediate delivery. Not only is domestic inquiry heavy but export as well. Among export bookings this week is 700 tons of black for France for reconstruction purposes. Within 30 to 60 days it is expected France and Italy will place tremendous tonnage of sheets. From French ordnance officials comes word that nearly all the steel required for reconstructing France will be placed among the mills in this country and large tonnages of sheets will be included. Makers expect the export business from the South American countries to increase right along. Much of the business from these countries is placed among the mills through middlemen. The latter have had orders booked for several months but have been unable to obtain any sheets. Since the ban has been lifted brokers have cabled their customers in foreign countries to find out whether they still want the sheets as specified. One New York broker has orders amounting to 20,000 tons awaiting verification from his customers. Mills in this district are well booked with domestic business. Makers buying sheet bars are having no trouble now in obtaining ample supplies. An order for approximately 400 tons of galvanized sheets was recently booked by one maker for the ordnance department.

Export Demand Heavy

Philadelphia, Nov. 26.—Many thousand tons are represented in export inquiries for sheets now current. Eastern makers are not very anxious to quote, however, owing to the large tonnage on the books and the belief that they can get higher prices later. Some galvanized sheets for export were placed at 7.00c Pittsburgh during the week. There is not much new domestic buying but specifications against contracts are good. Automobile builders are beginning to specify actively against their contracts.

Cancellations Practically Nil

Pittsburgh, Nov. 26.—Cancellations of orders for sheets have been practically nil. Suspension of shipments has been rather freely requested and involve a fairly heavy tonnage. These requests come from interests which ordinarily are heavy users of sheets. It is stated that most of the buyers are getting ready to return to peace operations and in a great many instances, they have respecified against the deferred shipments, asking that peace materials be substituted for those which the end of the war rendered almost useless. Automobile makers, who as a result of the recent modifications of production limitations can now produce 62½ per cent of the 1917 output, continue to press the sheet manufacturers for the delivery of tonnages due them on old orders. It seems to be the plan of the pleasure car makers to get back to a 100 per cent production as soon after Jan. 1, as possible. As far as sheet supplies are concerned, this will be impossible, as there are a great many orders on the makers' books, which take precedence over those of the automobile companies. It is said that deliveries on orders for the past two years have been only 30 to 40 per cent of the amounts ordered and that the remainder has accumulated on the books of the sheet companies. Demands for deliveries on these old orders are reported to be urgent and while there has been some increase in sheet production lately as a result of a somewhat larger supply of sheet bars, the makers are finding it difficult to provide all the tonnages that are wanted.

Mills Increase Output

Chicago, Nov. 26.—Sheet mills are returning as rapidly as possible to full production and in the face of good demand for this material are looking forward to a busy season. The leading independent was forced to dismantle and store part of its sheet mills to provide for war work but is now returning the machinery and putting it in service as rapidly as it can be prepared.

Final Cargoes

Of Iron Ore Will Leave Lake Loading Ports This Week

Cleveland, Nov. 26.—Final ore cargoes will leave the loading ports at the head of the lakes this week. Supplies at consuming points are sufficient to meet furnace demands during the winter and the December ore movement will be negligible. Indications are that the November shipments will run between 4,500,000 and 5,000,000 tons, bringing the total 1918 lake movement up to 61,500,000 tons.

Demand for ore tonnage has been less acute since the signing of the armistice. Some consumers have not been as insistent for lake tonnage as was indicated at the opening of the month so that the November total will not represent the maximum capacity of the lake fleet. Grain shipments have been heavy.

The meeting next month at Washington with the war industries board to consider the question of government price regulation for the first quarter of 1919 will have little effect on the ore trade. No ore is shipped by lake from the Lake Superior district during the first quarter so that price adjustments for that period have little meaning. Whether 1919 ore is sold in a controlled or an open market, a late buying movement is expected. This belief is based on the assumption that consumers will prefer to wait until future industrial conditions can be more clearly analyzed.

Auto Builders Buying Bars

Pleasure Car Manufacturers Place Tonnage for Quick Shipment—Ford Orders Big Program to Start—Export Demand Appearing

Cleveland, Nov. 26.—Automobile manufacturers are acting more freely in placing new orders for steel preparatory to restoring themselves to a peace production basis on pleasure cars. Several of the leading builders in this and Detroit districts during the past week placed a number of orders for bar steel, both carbon and alloy, amounting to some thousands of tons. Deliveries on this steel are wanted as quickly as possible but the mills are advising the builders that they will not be able to make the shipments as promptly as called for owing to previous obligations. The Ford Motor Co. has advised makers of parts to resume manufacturing at once on a production basis of 1000 cars daily. It is expected to work up this figure gradually to the ultimate of 3000 cars per day. One inquiry for 1000 tons of axle bars from one of the parts manufacturers is current. Bar consumers other than the automobile trade are coming into the market for some tonnage and miscellaneous orders are better. Prices are on the basis of the present government schedule.

Spot Buying the Rule

Chicago, Nov. 26.—Transition from war to peace conditions seems to be progressing without much difficulty and consumers are coming into the market for further supplies. The outstanding feature is that most buying is being done carefully and for present needs, specifications usually accompanying the order. An important steel producer in this territory finds that practically all its regular customers are engaged to some extent on war contracts and have been receiving steel regularly for that work. The situation now is that most of them are tapering off on war production and resuming their ordinary lines and are continuing to take steel although they are specifying different forms than were needed in their war production.

Warehouses are pressing for delivery in order to replenish their depleted stocks but material for this purpose has not been coming forward in large lots. On present sales one local producer is providing that the price for the steel shall be the government price ruling at the time of delivery, or in case price regulation is dropped the figure for the remainder of the tonnage undelivered shall be the prices ruling today.

Domestic demand for bar iron is light but export business is large, much going to England and considerable to South American countries and the orient. Some of the business for England is coming this far west as many eastern mills are overloaded with chain iron and other material, which was not affected by the end of the war.

Hard steel bars rerolled from rails are in slow demand with comparatively little business in prospect. Rails are being offered more freely than formerly but are not being taken readily.

Want Bars Abroad

New York, Nov. 25.—A rather active demand for steel bars for export has developed during the past week and many inquiries are current. Most of them involve 100 to 200 tons. Export companies in many cases are obtaining licenses. Some mills are offering soft steel bars for export at 3.50c, Pittsburgh, and this is thought to represent the foreign market. Several good sized lots of shell discard bars have been placed for export at 3.25c, Pittsburgh. Much domestic demand for steel bars is in prospect for shipment over the first quarter of next year, but owing to the present uncertainty, consumers desire to wait until December before committing themselves. Steel bars now can be had for delivery in 45 to 60 days. Demand for iron bars is slow at present.

In the Readjustment Period

Pittsburgh, Nov. 26.—As yet the situation in merchant steel bars is not clearly defined. Consumers, especially those making shafting, have received a good many suspensions and cancellations of orders and have not yet had time to revise their requirements and to make much progress toward getting back to normal peace products. That this readjustment will be fairly rapid is generally believed from the fact that already there are promising signs of an early arrival at a peace basis of the automobile industry, with its numerous demands for which steel bars form the basis. The implement industry should soon be more fully engaged, with an attendant increase in the demand for bars. Most producers of shell rounds will be clear of such work by Jan. 1, and then or shortly before, it is expected bar production will expand.

Trade Hesitates on Bolts

Chicago, Nov. 26.—Although most makers of bolts and nuts are ready to book contracts for first half at present prices, some have not yet expressed themselves to that effect. Most manufacturers will have considerable tonnage overlapping from this year which will restrict the quantity for sale for first half. On the whole consumers are viewing the situation conservatively and are not anxious to place large commitments at present prices, but some spot business is coming through and export business is heavy. The government recently placed an order for 2300 tons of bolts which is believed to have gone to manufacturers in the east.

Get Shafting Suspensions

Pittsburgh, Nov. 26.—Orders from the government holding up work on business placed some time ago continue to come to the makers of cold rolled shafting. New orders are nowhere nearly as large as those that are being suspended or cancelled and orders that have been on makers' books for some time are providing no considerable strain on production. Old contracts are chiefly from the automobile manufacturers.

Band Demand Limited

Pittsburgh, Nov. 26.—Outside of the fact that automobile makers are seeking tonnages of steel for the production of wheel rims, the market in hoops and bands remains extremely inactive. Cooperage interests appear to be fairly well covered and new business from jobbing sources does not amount to much for the reason that stocks have been little lessened by war demands and these interests also had fair sized orders with producers, upon which they can now draw.

Italy Buying Many Plates

Placing 100,000 Tons and Wants Further Tonnage—Emergency Fleet Cancels Tonnage at Cleveland and in East—Market Strong

New York, Nov. 25.—Great orders for plates and other forms for reconstructions needs are being placed by the Italian government through Ansaldo & Co. One lot of 100,000 tons of plates along with 50,000 tons of shapes is about to be closed if it has not already been placed at the established government price. About 150,000 tons of additional steel is expected to be bought by the Italian government shortly. Plate deliveries, it is learned, have been held up at a number of mills by the Emergency Fleet corporation, owing to the fact that radical changes in specifications are to be worked out to accord with the present plans to concentrate on the production of large sized vessels. For this reason, a number of plate mills have tonnage to offer for fairly early delivery. One mill is in a position to sell plates for shipment in 45 to 60 days.

Numerous orders for plates for first quarter are expected to be placed, but the consumers in most cases plan to wait until December, before closing. Practically the only activity in the plate market at present is comprised in export demand. So far, there are more export inquiries than orders. Price views on plates for export vary greatly. One company asks 3.75c to 4.00c, Pittsburgh, and another 5.50c to 6.00c, Pittsburgh, and both have made sales to these figures. Most prominent of the export inquiries now in the market are a number from Japanese houses involving lots of 1000 to 2000 tons each.

Offerings Still Are Small

Pittsburgh, Nov. 26.—Open market offerings of plates as yet are not large enough to restore this product to the

class of commercial commodities. Such supplies as are available for other than are required for ships and railroad cars are those odd sizes and rejections, which have come on the market even when the pinch in the supply was most acute. It is expected that the revision of the ship program and the curtailment in car production will release some tonnages of plates, but an export demand is expected to take up much of this slack. Domestic commercial users are reported to be hesitating about purchases.

Fleet Cancels Tonnage

Cleveland, Nov. 26.—Cancellation of about 20,000 tons of plates for the Emergency Fleet corporation was ordered in this district last week and a British order for several thousand tons weekly has been suspended effective Dec. 1, pending adjustment of conditions in switching from war to peace time operations in England. French and Italian plates have not been cancelled and an inquiry for about 50,000 tons of plates from Ansaldo & Co., Italy, appeared this week. The new business and that previously booked but crowded out by immediate war orders have more than absorbed the slack from suspensions and cancellations. Miscellaneous orders for plates and heavy sheets show some increase in this territory. None of these orders have been heavy but in the aggregate they represent a fair amount. They have been coming from various consumers including the railroads, oil interests and from export buyers. The largest lot placed was 2500 tons from a tank builder in a nearby district for quick shipment and the government price will prevail. Some export business which has been on the books of makers now is being called for. A new inquiry from Japan involves 800 tons of heavy sheets. On export business makers have been quoting 5c, mill, for black sheets.

Ship Work Continues

Chicago, Nov. 26.—Allocation of tonnages of ship steel continue to be made by the government and within the past few days a considerable tonnage in lots of 500 to 1000 tons each have been placed in this district. Other users of plates are coming into the market for material to be used in ordinary channels and this department of the steel business promises to go ahead without a jar.

Mills Choked With Orders

Philadelphia, Nov. 26.—Most eastern platemakers believe that if government maximums were withdrawn prices would go up. Cancellations have been comparatively negligible, so that mills are choked with business. Urgent requests are being received from many consumers to hurry deliveries on orders already booked. Some new orders also are being taken. Practically the only cancellations of any size, except those for proposed new shipyards and shipyard extensions cover material for cancelled locomotives. Many export plate inquiries are before the trade and a huge amount of foreign buying is expected, although some of the current inquiries are believed to be only feelers. Makers' price views on export sales usually are 5.00c Pittsburgh or more.

Want Heavier Ship Shapes

Fleet Corporation Advises Mills of Needs for Larger Vessels—Will Replace 40,000 to 45,000 Tons Cancellation—Italy Buying Heavily

Philadelphia, Nov. 26.—Officials of the Emergency Fleet corporation at the conference on the standardization of ship sections in this city last week told the steelmakers that contracts soon will be let for larger vessels than those now under construction and that these consequently will call for heavier sections than those shown in the standardized code. These contracts are to be let on a competitive bid basis. Steelmakers expect that December mill schedules on Emergency Fleet steel will be cut in half due to the large tonnages now at shipyards and to the reduction in operation by the elimination of overtime. Contracts for 40,000 to 45,000 tons of steel for 12 boats which were to have been built by the Louisiana Shipbuilding Co. have been cancelled. This is due to the withdrawal of the vessel contract because the Louisiana yard has not yet been built. The contract will be switched to another yard and the steel later will be let in accordance with the new specifications. In addition steel for some ocean-going tugs also have been cancelled by the Fleet corporation. Makers say cancellations of domestic shape tonnages are almost negligible whereas there are many requests for deliveries on contracts. New domestic buying keeps up but involves only a small total. There is every indication that the export business will be large. One mill during the week booked 15,000 to 20,000 tons of shapes for shipbuilding in Italy. Some producers are so optimistic over the situation that they declare the prices would go higher if government control were lifted. It is believed among the mills that the ship standardization movement will be followed by similar action in shapes for cars and certain other uses.

Work to Go Ahead

Cleveland, Nov. 26.—Some structural work in this district placed before the war demands absorbed mill capacity but held up by delay in the delivery of some of the tonnage, now is to go forward at an early date. An example of this is the new municipal auditorium of which a portion of the steel still is to be delivered by the mills. New jobs are coming into the market slowly but there is talk of one involving 600 tons which may be released.

Reconstruction Shapes Placed

New York, Nov. 25.—A lot of 50,000 tons of structural shapes now is being placed by the Italian government through its representative Ansaldo & Co. and it is reported that this went to the leading producer at the full government price. Italy remains in the market for a large tonnage of finished steel which will include a liberal amount of shapes. Most of the current demand for plain shapes is from abroad, and there are more inquiries than orders in connection with this business. Sales of shapes for export are being made by one eastern maker on the basis of 3.50c to 3.75c f.o.b. mill.

Domestic demand for structural steel continues of negligible importance in this district. Lettings of the week included considerably less than 1000 tons, and not much more is in sight for early action. The largest project before the trade is the proposed armor plate plant for the navy department to be erected at Charleston, W. Va. About 23,000 to 24,000 tons will be required for this plant.

Little Private Construction

Pittsburgh, Nov. 26.—Fabricators of steel in this district report business as extremely slack outside of the requirements of the Emergency Fleet corporation for ship steel. Thus far, notwithstanding the modification of the government restrictions, little private construction work has been started and the opinion seems fairly general that the winter is too close at hand for very much of this work to get under way.

Construction Coming Back

Chicago, Nov. 26.—Some projects involving the use of structural steel shapes are coming to the front outside the channels through which most structurals have moved for several months. The full effect of removing the ban on building is not being felt, but indications are that in a short time a heavy demand for structural material will be experienced. Among projects recently closed in the west is 147 tons for the Burlington railroad which will be fabricated by the American Bridge Co., and 107 tons for a crane runway at St. Louis. The board of local improvements at Chicago will receive bids until Nov. 30 on the Michigan boulevard bridge and approaches, the work being divided into six portions. This improvement has been figured several times but the bids received have not been satisfactory.

CONTRACTS AWARDED

Bridge for Central Railroad of New Jersey, 180 tons to Bethlehem Steel Bridge Corp.

Ten buildings for navy department at Yorktown, Va., 250 tons to Dietrich Bros., Baltimore.

Highway bridge for Erie railroad at Rochester, N. Y., 170 tons to Bethlehem Steel Co.

Four pump houses, various locations, for the Prairie Pipe Line Co., 200 tons.

Girders and brackets for the United States railroad administration, Chicago, Burlington & Quincy railroad, 147 tons, to American Bridge Co.

Crane runway at Stocking House, St. Louis, for the Scullin Steel Co., 107 tons, to the Banner Iron Works, St. Louis.

CONTRACTS PENDING

Three bridges for Pennsylvania railroad, 1200 tons, bids being taken.

Armor plate plant at Charleston, W. Va., for navy department, 23,000 to 24,000 tons, opening of bids postponed to Dec. 9.

Twenty brick towers with steel superstructures, 500 to 600 tons, opening of bids postponed to Dec. 2 by bureau of yards and docks, navy department.

Mills Switch Shell Steel

France Cancels Contracts and British Are Negotiating—American Orders Being Filled at Reduced Gait—Semifinished Increases

Youngstown, O., Nov. 27.—Many French shell steel contracts have been cancelled in this country and in their stead tremendous tonnages for various steel products will be placed. Orders are expected to come out in 30 to 60 days. It is also uncertain at present as to whether the distribution of orders will be handled through government officials, the French commission in this country or from France direct.

It now develops that the British are exceedingly anxious to cancel their shell-steel contracts but their pleas are finding little if any favor among various makers. A proposition which they submitted to one valley maker was that the latter substitute a similar tonnage of commercial steel and permit them to sell it to the American trade. This the maker refused to do but offered to sell the steel in this country at the highest offering and the British would make up the difference from the contract figure. This plan, however, did not meet the approval of the British officials. It is understood that only recently the British disposed of some shell forgings at $30 per ton in this country. The tonnage sold is not stated. It is reported the British will require little if any steel products made outside the United Kingdom. Nevertheless a recent cable called for 30,000 tons of skelp for immediate delivery.

Valley makers continue to roll shell steel but in a modified way. Old-time customers now are experiencing no trouble in obtaining sheet bars from mills here. The supply of open-hearth steel for sheet-bar rolling has increased considerably on account of certain government orders having been wiped off the books. Makers are seeing that their customer's requirements of sheet bars are being satisfied only. Inquiries are coming to all valley mills in good quantities but the individual tonnages are not large indicating that buyers are feeling out the market.

Want Commercial Tonnage

New York, Nov. 25.—It is learned that the allied governments will cancel orders for war materials in this country only when they are unable to secure substitute materials which may be used for the purposes of peace. Where shell steel now is on order, it is understood semifinished steel, wire rods, merchant bars, and other forms will be taken.

Supply Situation Easier

Pittsburgh, Nov. 26.—Users of 4 x 4 billets still find some difficulty in securing supplies, but with this exception, the market in semifinished steel is considerably easier in the matter of offerings. Old orders on the books of steel companies are absorbing fairly well any increase in the supply of billets and outside of the size mentioned, open market offerings are fairly large and are meeting with only a limited demand. Revision of the plate requirements has made it possible for some makers to entertain inquiries for slabs and there no longer is the pronounced scarcity of sheet bars that there was a short time ago. An interesting development in the market has been the fact that all restrictions hitherto in force with regard to the middlemen seemingly have been abrogated, for cases are reported recently of some fair sized tonnages of both slabs and sheet bars which passed from producer to consumer by means of brokerage houses.

Cut Shell Steel Output

Philadelphia, Nov. 26.—Although shell steel orders in the east have not been cancelled, nor have the mills been ordered to stop producing, they have received intimations in some cases that no more tonnage will be required, hence they voluntarily have stopped hurrying this material. Semi-finished steel is beginning to be offered much more freely. One western mill has sold 600 to 700 tons of forging billets.

More Business is Moving

Cleveland, Nov. 26.—Both inquiries and offerings of semifinished steel continue to increase and some sales have resulted. A norther Ohio strip steel manufacturer has purchased 3000 tons of bessemer slabs for December delivery at government prices. A valley sheet maker has been inquiring for 2000 tons of bessemer sheet bars for early delivery and a local consumer also is in the market for 1000 tons of the same product for shipment within a few weeks. There are other inquiries for semifinished steel in the market. At least three different steelmakers located at Cleveland, valley and Pittsburgh territory, have been offering sheet bars against these inquiries but all have been quoting full government prices. One local producer of shell steel who has sufficient orders of this character to take up his capacity to July, is expecting cancellations soon. A railroad embargo has been placed on a shell forging plant in this city following a rush of steel shipments which included 90 cars from a Chicago mill.

Rim Makers Are Buying

Pittsburgh, Nov. 26.—Makers of automobile wheel rims are in the market for fairly heavy tonnages of deep drawing quality of cold rolled steel, but such business only in part compensates for the business lost through suspension and cancellations of direct and indirect government orders.

Large Order

For Ferrosilicon Placed by Steel Corporation—Other Alloys Dull

New York, Nov. 26.—An order for 30,000 tons of 50 per cent ferrosilicon for forward delivery has been placed by the Steel corporation for 1919 delivery, but several other large makers who have been negotiating are held off until conditions become more defined. The market has been reflecting an attitude of waiting and uncertainty among buyers and sellers. Prices are unchanged at $150 for 1919 contracts. Material for nearby delivery continues rather scarce, sales of spot carloads of 50 per cent alloy being reported all the way from $155 to $163 a ton.

The ferromanganese and spiegeleisen markets are slow owing to the fact that consumers are well covered.

Business Still Dull

Pittsburgh, Nov. 26.—Demand for all ferroalloys continues extremely light in the market here. In fact consumers instead of making fresh purchases are in many cases asking for suspension of shipments and also are understood in a few instances to be seeking cancellation of remaining tonnages due them. Some makers rather than have tonnages on which deferred shipment has been asked lay on their hands, have offered them on the open market. Sales of this sort of 50 per cent ferrosilicon are reported to have been made as low as $140 a ton, delivered, as against the nominal market quotation of around $150. A few small inquiries for 70 per cent ferromanganese for prompt shipment have been received but no actual business has materialized as yet as the buyers are trying to secure concessions. Makers generally are holding for $250 delivered for this alloy but no recent sales have taken place at that price.

Car Inquiry

Appears at Chicago From Virginian —France Asks for Spikes

Chicago, Nov. 26.—For the first time in many months an inquiry for railroad cars is current in the market, the Virginian railroad having asked for 2000 hoppers which will be bought through the railway administration. Car shops are completing such military cars for use in France as are well advanced but the latest order for 40,000 cars for that purpose is being held up pending advices from Washington.

Japan Buys Supplies

Philadelphia, Nov. 26.—The Imperial railroads of Japan yesterday bought 8000 steel-tired wheels and 15,000 spare tires. Considerable export rail inquiry is in the market, on which the mills are quoting $60 to $65, Pittsburgh, for bessemer and $2 higher for open hearth.

France Wants Spikes

Pittsburgh, Nov. 26.—An inquiry for 10,000 kegs of standard spikes for export to France in connection with the laying of American rails has been received by makers in this district. Domestic demands for large railroad spikes continue moderate and in volume only sufficient to meet the immediate needs of the roads. Small spikes still are in good request for coal mine operations. No let up in the production of standard rails for shipment to France is observed and the mills making them are fully engaged.

Release Steel for All Domestic Uses

Government Practically Relinquishes Control Over Market, Except as to Prices—Director Replogle Notifies Manufacturers of Discontinuance of Allocations Nov. 30—Prospects Bright for Free and Open Market Soon

Director Replogle's Letter to Steelmakers

IT has been decided to discontinue steel allocations through this office after Nov. 30, 1918, and the various purchasing departments will deal directly with the trade on future requirements.

Please continue all weekly reports up to and including Dec. 31, 1918, when you may suspend all reports to this office, unless otherwise requested.

On behalf of Chairman Baruch and the steel division of the war industries board, I wish to express our sincere appreciation of your untiring devotion and the great ability you have shown in helping us to meet the enormous steel requirements during the greatest and most terrible of all wars, in which you have performed your functions in a big, broad way.

Sincerely yours,

(Signed) J. L. Replogle,
Director of Steel Supply.

WASHINGTON, Nov. 26.—The bars which have held the iron and steel industry in control of the government more than a year are rapidly being lowered, and prospects are bright for unrestricted trading in a free and open market within a short time. Following developments last week, price control now is practically the only thing that stands in the way of complete return to "regulation by the law of supply and demand." How long price control will continue is not known, various views on the subject being held by both governmental and industrial officials.

Perhaps the most important step looking to the quick return of the industry will be taken next Saturday when, with the passing of the month, the steel division of the war industries board will cease to allocate steel and pig iron for the various government purchasing departments and the allies and to pass on civilian requirements. J. Leonard Replogle, director of steel supply, last Saturday sent a letter to members of the American Iron and Steel institute and to the heads of practically all steel plants in the country, notifying them of this action.

Mr. Replogle's letter informs the steel manufacturers that after Nov. 30, 1918, the various purchasing agencies of the government "will deal direct with the trade on future requirements." This also applies to the future buying by the allied and other foreign governments. The only control Mr. Replogle will continue to exercise is that of receiving weekly production reports up to the close of the year. Mr. Replogle requests the manufacturers to continue sending in these records until Jan. 1.

Discontinuance of the allocation and the weekly report systems is an action that practically leaves the price-fixing machinery the only controlling government factor over steel. While priorities have not been abandoned entirely, their effect now is more as a guide than as a regulating force. The last announcement on this subject was more in the form of an appeal to all industrial managers rather than as a mandatory order. It is felt that even priorities as a guide no longer are required because even in prewar times manufacturers made it a point to serve the government in accord with the essentiality of its requirements.

Mr. Replogle's letter really announces the dissolution of the steel division of the war industries board. The expert and clerical staffs are to be reduced immediately. They have had but little to do since the armistice was signed. The steel division's duties, no matter by whom performed, will not end, however, until the allies have ceased to purchase steel with funds loaned by the United States. It is part of the requirements by which the loans were made that all purchases should be passed upon by this government. This does not prevent, however, the allies buying when and from such manufacturers as they please.

Soon after the armistice was signed the war industries board cut in half the restrictions which bound the steel-consuming industries of the country. Later the building construction limitations were removed entirely and the latest action on priorities, coupled with that of Mr. Replogle, practically lifts the ban which had been placed upon all domestic consumers.

This leaves price control as about the only thing between the industry and a wide open market.

Mr. Replogle's relinquished control over the industry was not without a word of thanks and commendation to the steel producers. In addition to the steel director's statement in his letter, he said to a representative of THE IRON TRADE REVIEW:

"The steel producers have responded nobly to the call of the country and have met all requirements and restrictions, freely giving plant, capacity and product to whatever task was imposed. This division was organized to help the government. Now that that obligation has been met, if it can help the trade it will be glad to do so. We are winding up the affairs of this branch of the board and in another week will cease all allocation. We feel the urgency of the situation is past and that control is not much longer required. The industry has asked that some form of control be continued for the time being and if that still is desired we will endeavor to meet the situation."

Replogle to Make Report

The reports Mr. Replogle has received and will receive weekly from iron and steel producers will be the basis of a detailed report he is to make to Bernard M. Baruch, chairman of the board, who in turn is to pass it on to the President. Mr. Replogle will show the vast tonnage this country has thrown into the war, both for itself and its allies, and will show in detail the tonnages produced by the rolling mills and blast furnaces. This will be the first time the public, even the iron and steel producing public, will have an oppor-

British Reconstruction Moving Swiftly

(Staff Correspondence.)

LONDON, Nov. 22.—Great Britain is making rapid progress with great reconstruction plans. The government is encouraging private enterprise in many ways. Shipbuilders have been authorized to seek private contracts and a number of ships have been released to import ore from Spain. Steel is being made available for ordinary industrial purposes. The government has prohibited the immediate discharge of munition workers, but overtime and piece work has been abolished. Employers have been ordered not to change wages for six months.

tunity to peep behind the scenes of steel war production. The disclosures will be made as soon after the first of the year as the reports can be compiled.

In making out the weekly reports as requested by Mr. Replogle, steel manufacturers may have difficulty in filling in the spaces in which reference is made to priority preference and permit. To simplify this, the manufacturers may disregard all notations under "All outstanding orders at the end of the week classified on priority basis." In filling in blanks above this line, manufacturers will also note spaces for priority preference and permit, and reports as to these shipments are to be made as though orders filled were still covered by the original priority preference or permit classifications. Should none of the steel shipped be covered by any of these provisions it will be proper to insert additional lines and note the tonnage as "not otherwise classified."

Board May Extend Time of Price Control

WASHINGTON, Nov. 26.—Further lifting of curtailments on civilian production will be determined at conferences between representatives of each separate industry and the war industries board, according to Bernard M. Baruch, chairman of the board. The board will invite suggestions as to how best these curtailments may be lifted or modified. There are 42 industries which have been under restrictions. It was proposed to lift them in a number of cases last week, but the original draft of circular No. 58, which carried priorities for them, finally was withdrawn and a revised circular issued by which priorities now are confined to orders placed by the navy, the Emergency Fleet corporation, railroads, and telegraph and telephone companies.

It is the purpose of the war industries board to continue all maximum prices thus far established for the periods originally set in the price-fixing orders, Mr. Baruch said. As the time for expiration approaches the board will consider the advisability of extending price control. To attempt any change before the dates fixed in the original orders, Mr. Baruch pointed out, would be to inflict hardships on those who have placed orders on the assumption that the prices would obtain for the period specified.

Can Enforce Maximum Prices

Calling attention to the fact that the board still has centralized control over fuel and transportation, Mr. Baruch said it remained in position to enforce these maximum prices. He stated he could not give any idea as to what may be done with regard to fixing prices of steel when representatives of the American Iron and Steel institute and the price-fixing committee of the war industries board hold a meeting in Washington on Dec. 11.

Referring to the pooling agreements between the United States and the allies, Mr. Baruch stated that as far as this country is concerned these agreements will be closed with the signing of the peace treaties. Respecting the tin pool, Mr. Baruch explained, the commodity had been bought for consumers and that until liquidation had been completed the rules and regulations of the pool would be continued in effect. He called attention to the fact that under the arrangement, the government had been able to buy tin at a price 45 cents a pound below the market figure on the entire amount of 80,000 tons allotted to the United States.

In response to representations from the automobile industry, Mr. Baruch said, the board had modified the curtailment on the production of passenger automobiles to the extent of 50 per cent of that curtailment. In other words the industry now may make these automobiles to the extent of 75 per cent of normal production.

The representatives of the industry, he said, in a memorandum presented through Hugh Chalmers, chairman of the war service committee of the automobile manufacturers, had informed him that they had gone forward with the plan of having the industry on a strictly war basis by Jan. 1, and now desired opportunity to retrace their steps and get back to a peace basis. They asked a generous adjustment of war contracts, and Mr. Baruch said that while the war industries board had no control over these adjustments he was in favor of generous treatment. Similarly, he explained, the board has no control over the cancellation of contracts, which, the automobile manufacturers urged, should be slow. Finally the memorandum urged that the board continue to supervise the industry over the period of transition.

Urges Prompt Adjustments

Relating to the whole subject of contract adjustments, Mr. Baruch, still emphasizing the fact that the board has no control over the subject, declared that more important than anything else was the necessity for prompt adjustments. Given these, he said, the industries could themselves quickly find their way back to normal conditions.

Mr. Baruch spoke again of the advisability of continuing under some permanent government agency, such as the department of commerce, some of the work which has been done in the way of industrial conservation. Particularly is this need apparent, he said, with regard to those measures which the industries have already set in motion.

Restrictions Off, Labor Problem Attacked

WASHINGTON, Nov. 26.—Preparations being made to restore the nation to a peace basis are manifested in various directions. Among them are those announced late last week in three statements given out closely together. One of them came from Chairman Bernard M. Baruch saying that all remaining restrictions on nonwar construction throughout the United States have been officially removed. The department of labor announced that at the request of Secretary of War Newton D. Baker and Mr. Baruch, the United States employment service has begun "sizing up" the labor situation of the country in the industrial centers. The war trade board at the same time announced that the conservation list had been shortened.

In his statement, Mr. Baruch said that formal notice of the removal of all remaining restrictions on nonwar construction had been telegraphed to the chairmen of all the state councils of defense by D. R. McLennan, chief of the nonwar construction section of the war industries board. The action permits all building operations of whatever character, held up in the interest of the war program, to proceed. No further permits will be required from the board or the state councils, through whom control over the situation in each state was maintained.

The purpose of the information sought by the employment service in surveying the labor situation, is to enable the war department and the war industries board to avoid causing unemployment through too rapid curtailment of war contracts or too rapid demobilization of the army.

The changed situation arising out of the signing of the armistice made it possible for the war trade board to alter many of its regulations governing the exportation of certain commodities, which the continuance of the war has heretofore made it necessary to conserve much more strictly than present circumstances require. In consequence, the war trade board in a new ruling (W. T. B. R. 339), is now revising as rapidly as possible its rules of conservation, and in conformity with such revision, the conservation list will be materially abbreviated. The board is now in a position to grant many export licenses which heretofore have been refused for reasons of conservation.

The statement is made that exporters should be advised that, while it is no longer necessary to conserve commodities for war purposes, it may become necessary to regulate the exportation of certain commodities essential to the rehabilitation of Europe and Siberia; and exporters are further advised that it may become necessary to place restrictions upon the exportation of bulky commodities by reason of the scarcity of

tonnage available.

Tonnage continues to be the controlling factor and when reconstruction is well under way, it may become necessary to subject certain raw materials to rationing. The board also calls the attention of exporters to the fact that the trading with the enemy act still remains in full force.

Some Government Needs Retain Priority

WASHINGTON, Nov. 25.—Priority ratings except as they apply to the requirements of the army, the navy, the Emergency Fleet corporation, railroad, telegraph, and telephone companies, ceased to exist Nov. 22 when circular No. 58 was issued by the priorities division of the war industries board. This circular as stated in the Nov. 21 issue of THE IRON TRADE REVIEW as originally prepared, would have continued priority on the requirements of certain civilian purposes in addition to those for the various government needs outlined, but was held up at the eleventh hour owing to a difference of opinion as to the scope the new regulations should take which developed in the war industries board. As the new circular finally was issued, it makes no discrimination among civilian wants. The industries of the country, however, are urged without resorting to priority assistance to speed up the production and delivery of orders for the repairing of public utilities, manufacture of farm implements, and equipment for the production and distribution of food, petroleum and natural gas pipelines and other facilities; and for the operation, repair, maintenance or expansion of mines, coke-oven plants, ore reduction plants, smelters and furnaces employed in the production of fuels, metals and metal products.

The new order cancels all outstanding priority ratings whether by certificate or automatic classification, with the exceptions stipulated. It is pointed out, however, that it in no wise implies cancellation of orders since priority directions and requests had been entirely disconnected from the placing of orders. Furthermore, the full force and effect of the directions prior to Nov. 22, 1918, are retained and preserved for the protection and benefit of those who have respected and observed them.

The order further eliminates completely Preference List No. 2 issued by the priorities division for the guidance of all governmental agencies and others interested in the production and supply of fuel and electric energy; the supply of labor; and the supply of transportation. From time to time, however, the priorities division will promulgate such rulings and make such suggestions and requests in connection with priorities in the production and supply of fuel, electric energy, labor and transportation as changing conditions may require.

The new circular No. 58 setting forth rules and regulations covering priority in production, is as follows:

The priorities division of the war industries board recognizes the wholehearted support accorded by the industries of this nation to the regulations governing priorities promulgated during the period of active hostilities, and expresses its deep sense of appreciation for that united co-operation.

The public interest, as well as the interest of the individual industries, demands that the flow of materials, equipment, supplies, fuel, transportation and labor, which has heretofore been diverted to war industries, should now as promptly as possible, without unnecessarily disturbing the equilibrium of industry, be rediverted to its accustomed and normal channels. To that end the war industries board will, as far as it consistently may, co-operate with industries, and the restrictions upon the production of peace time necessities and civilian requirements resulting from giving precedence to war production, will as rapidly as practicable be removed.

With this in view the existing rules and regulations promulgated by the priorities division of the war industries board, especially those embodied in circular No. 4 and supplements 1 and 2 thereto, are modified in the following particulars:

Revocation of Existing Priority Ratings and Exceptions Thereto

SECTION I. Effective as of Nov. 22, 1918, all priority certificates and all automatic priority ratings heretofore issued are hereby revoked, save such as have been issued covering:

(a) Orders placed by the United States Navy Department,
(b) Orders placed by the United States Shipping Board Emergency Fleet Corporation, and
(c) Orders placed by railroads, telegraph companies and telephone companies.

Revocation of Priority Does Not Imply Cancellation of Orders

SECTION II. Emphasis is here given to the fact that priority directions and requests, whatever their form, have been entirely disconnected from the placing of orders; their sole purpose and function being to define the relative importance of orders when placed. The provisions of Section I hereof, revoking the existing priority directions therein mentioned, do not in any wise operate as a cancellation of the order itself, or otherwise affect the order save to cancel the priority rating thereon as of Nov. 22, 1918. The full force and effect of the directions prior to that date are retained and preserved for the benefit and protection of all who have respected and observed them.

Cancellation of Rules Providing for Automatic Ratings

SECTION III. Effective Nov. 22, 1918, all rules and regulations heretofore promulgated by the priorities division providing for automatic priority ratings are hereby revoked and cancelled.

Application for the Issuance of Priority Certificates May Still be Made

SECTION IV. While applications for the issuance of priority certificates may still be made to the priorities committee on application form P. C. No. 15, still such applications should be made only where the need is urgent and where it is clearly in the public interest that under the present or then-existing conditions priorities should be granted. With the lessening demands for materials to be used for war purposes, the need for priority assistance will constantly grow less. It is, however, in the public interest that the filling of orders for the navy department of the United States, the United States Shipping Board Emergency Fleet Corporation, railroads, telegraph companies, and telephone companies, and orders hereafter placed by the war department of the United States, be expedited as much as possible, and that all possible assistance be rendered toward stimulating the construction of railroad locomotives, and the manufacture of other railroad materials, equipment and supplies; the manufacture of telegraphic and telephonic instruments and equipment; the repairing of gas, light, water and power plants, operated as public utilities; the manufacture of marine equipment; the manufacture of farm implements, and tools, implements, machinery and equipment required for the production, harvesting, distribution, milling, preserving, canning and refining of foods and feeds; the manufacture of binder twine and rope; the production of petroleum and natural gas, and the manufacture of supplies and equipment required for the production thereof, including pipe lines, storage tanks, tank cars, and refineries, and the operation, repair, maintenance, or expansion of all mines, coke oven plants, ore-reduction plants, smelters and furnaces employed in the production of fuels, metals, and metal products. The priorities division, therefore requests the industries of the country to speed up the production and delivery of the orders for these purposes and uses to insure delivery when required without the necessity for those placing the orders requesting priority assistance.

Preference List No. 2 Revoked

SECTION V. Preference List No. 2 (Circular No. 20) and all supplements and amendments thereto issued by the priorities division of the war industries board for the guidance of all governmental agencies and others interested in (1) the production and supply of fuel and electric energy; (2) the supply of labor; and (3) the supply of transportation service by rail, water, pipe lines or otherwise, is hereby effective Nov. 22, 1918, revoked and cancelled. The priorities division will from time to time promulgate such rulings and make such suggestions and requests in connection with priorities in the production and supply of fuel, electric energy, labor and transportation, as changing conditions may require.

EDWIN B. PARKER,
Priorities Commissioner.

Approved:
Bernard M. Baruch, Chairman,
War Industries Board.

Fixed Prices to End Jan. 1

War Industries Board Advises Various Industries Present Maximum Schedules Will Not be Extended Unless for Special Cause

WASHINGTON, Nov. 26.—If stabilized steel prices continue beyond the end of the present quarter, the government likely will allow them only on the request of the steel manufacturers themselves. The war industries board has instructed the various division and section heads to notify various industries that the present maximum prices are unlikely to be extended beyond their present terms and that there will be no further effort toward price control unless extraordinary circumstances should arise.

This policy means that the steel manufacturers or perhaps the labor interests will have to make the first move to keep present maximums in effect longer than the present year. It is likely the iron and steel price conference scheduled at Washington for Dec. 11 either will be called at an earlier date or cancelled. What constitutes the "extraordinary circumstances" in steel situation is not clear. The steel conference may be necessary to determine this.

It is felt the government action on steel prices should be made known as early as possible to allow the industry and its customers to know what to look forward to. It is held an official announcement should be made that price schedules expire with the current year or will be continued for a certain definite period. It is because of this fact that the meeting of Dec. 11 may be called near the first of the month or called off altogether. In this connection the attention of the industries is being called to the fact that adjustments of war contracts are inevitable and cannot be avoided, that they must come practically all at once since it will be extremely difficult to attempt any detailed discrimination among various orders, that curtailments must be lifted as expeditiously as possible so as to permit the return of general conditions to a normal basis, and that in all cases provision has been made by the various government contracting agencies for fair and equitable adjustment of contracts.

It develops now that no new international agreements for supplying materials will be entered into. Alexander Legge and L. L. Sumners in charge of the American mission abroad have been so instructed. Their attention has been called to the fact that the United States still retains control by embargo.

Plan Combine

Of Independent Steel Makers For Export Trade

Representatives of leading independent steel companies held meetings in New York Wednesday, Thursday and Friday to decide on plans for engaging in export business. As a result, it is expected that a company shortly will be organized under the Webb law to handle the export business of the Midvale Steel & Ordnance Co., the Republic Iron & Steel Co., the Lackawanna Steel Co., Bethlehem Steel Corp. and other steelmakers. The United States Steel Corp. will not be included in the proposed export organization since it already has its export trade well organized and in the hands of its subsidiary, the United States Steel Products Co.

While the United States Steel Products Co. and the proposed organization will be competitors, they are to work in harmony as much as possible for their mutual interest.

As a result of the meeting held here it is understood that certain changes in the Webb law will be recommended to congress in order to enable American mills to compete successfully with foreign steelmakers.

Tungsten Men Meet

New York, Nov. 25.—About 100 members of the tungsten industry, including representatives of domestic producers, importers, ferrotungsten manufacturers and makers of high speed tool steels, met at the Bush Terminal building this city today, to consider ways and means of protecting the industry under present conditions. In the discussion of problems by various interests, it was shown that the trade is confronted with shrinking inventories, all the way from the importer who has stocks here and afloat, to the steel manufacturer who has large stocks of high speed tool steel on hand or contracted for. A committee will devise a plan to serve all interests.

The Non-Ferrous Metals

Copper Lead Spelter Tin

	*Copper	†Spot Straits, tin	‡Lead, New York basis	Spelter St. Louis basis	§Aluminum	Spot antimony
Nov. 20	26.00	.....	8.05	8.15	33.00	7.50
Nov. 21	26.00	.....	8.05	8.25	33.00	8.00
Nov. 22	26.00	.....	8.05	8.30	33.00	8.75
Nov. 25	26.00	.....	8.05	8.25	33.00	8.50
Nov. 26	26.00	.....	8.05	8.40	33.00	8.425

*Government fixed maximum price for prime lake, electrolytic and casting copper, in ingots, pigs, slabs, etc., less than carloads, 27.30c.

†No spot Straits tin offering.

‡Price agreed to by leading interest and independents.

§Government fixed price for 98 to 99 per cent ingot aluminum in 50-ton lots; lots 15 to 50 tons, 33.10c; one to 15 tons, 33.20c.

NEW YORK, Nov. 26.—Producers and consumers of the nonferrous metals have been watching developments closely, paying particular attention to cancellations and possibilities of cancellation of government contracts. A canvass of the leading producers of copper, spelter and lead last week indicated that cancellations of the metals thus far have been extremely scarce. One of the largest producers in the country stated it had had only one carload cancelled. At the same time, there have been signs that the way is being prepared for wholesale cancellations in some quarters. In many cases producers are rushing shipments of metal through to consumers who are expected shortly to ask that shipments be held up. This procedure, of course, is only adding to the difficulties of war contractors whose contracts are being withdrawn.

Many rumors have been current respecting cancellations of copper and of copper being offered on the market at prices considerably under the maximum price of 26c. The producers of electrolytic and lake are standing pat on the fixed price, asserting that the market is stronger now in every respect than it ever was before. Casting copper has been offered at 24.50c a pound.

Some 6000 to 8000 tons of spelter is due the government in November and December on old contracts. It was thought for a time this metal would be thrown on the market before the end of the year, but this view was changed and the market recovered somewhat after a sharp decline. Prompt shipment prime western is being held around 8.35c. to 8.50c. East St. Louis basis, while December is quoted 8c to 8.10c and first quarter 7.87½c. Practically no business is being done in high grade spelter.

The Tin Importers' association, which was formed in the interests of the tin importing trade, and which has submitted a protest to the war industries board against alleged monopoly of the United States Steel Products Co. in the tin importing business under the new control, recently forwarded to the board an alternative plan for tin regulation. Last week it submitted a complement to this alternative, by which it virtually offers to take from the Steel Products company the tin purchased thus far and to relieve the corporation from further financial responsibility. The tin market has been dull, pending the first arrivals of the tin bought under the new control. It is not yet known what price will be named for this tin. The price of spot Banca tin is nominally about 73c and of 99 per cent tin, about 71c.

The antimony market experienced some buying by speculators after the spot market declined as low as 7.50c, duty paid, last week, and this buying quickly brought prices back to 8.75c, when the market again softened.

The lead situation has shown little change, supplies remaining short, although attention in this as in other metal industries is focussed on Washington's policy with regard to cancellations of war contracts. It is believed the lead producers' committee will continue to exercise supervision over distribution for some time to come.

Shell Need Found Foundries Ready

Methods Developed in American Foundries Possessed Possibilities for the Production of Millions of Semisteel Shell Within a Few Months —How Molding and Casting Work Was Done

FACED by a possible shortage of steel and shell forgings attention was directed during the past fall to the possibility of making a tremendous tonnage of cast semisteel projectiles. Had the collapse of the German army come a few months later a greater portion of the foundry capacity of the country would have been engaged in the production of this class of munitions. Indeed, a program involving the manufacture of 33,000,000 shell in this manner was announced by the ordnance department, and attention of the foundrymen was directed to methods of manufacture by which quantity production might be obtained. A report was prepared and presented by the semisteel shell committee on manufacturing practice at the meeting of the American Foundrymen's association at Milwaukee. This report presented a study of the best available practice in this field, and while it is of no service at present as a guide to munition production, it serves as a valuable commentary on foundry methods, applicable to similar work, and as a record of a great accomplishment by American foundrymen.

Foundrymen Donate Experience

The experience of our French allies whose experiments in this field antedate the war served as a basis upon which to build. Of even greater value to shops in the United States was the work both here and abroad of certain large American corporations, whose experience generously was donated to the government and to the foundry industry in the emergency. In this connection especial recognition is due the American Radiator Co., Buffalo, for its prominent part in the work. The methods here described were developed largely by this company.

This subject naturally divides itself into two parts, dealing respectively with the foundry and machine-shop problems involved in semisteel shell manufacture. The foundry problems deserve first consideration; also they involve matters, concerning which there is relatively little information available at the present time. The data here presented covers primarily the production of 4.7-inch and 155-millimeter shell, although the production of 75-millimeter and 8-inch shell also will be touched upon. In addition the government expected to make contracts for some shell larger than 8-inch. As far as operations in the foundry are concerned, the methods were almost identical for the various sizes of shell, the principal variations from normal practice being encountered in the largest and smallest sizes. The 75-millimeter shell involves some problems peculiar to itself and the same is true of shell 8 inches and larger in diameter. The general methods of production are best explained, however, by dealing principally with shell of medium size, namely 4.7-inch and 155-millimeter, with suitable references to the special modifications in practice which may be necessary when turning out larger or smaller sizes.

FIG. 1—CAST IRON SEMISTEEL SHELL BEFORE RISER IS CUT OFF, ALSO SHELL AND RISER AFTER THE LATTER IS SAWED OFF

The Background of the Problem

In a purely experimental way semisteel shell were made both in the United States and abroad prior to the war. The United States navy, it is understood, made experiments on the production of cast iron and semisteel shell in permanent molds, as well as in sand, as far back as 1910. Considerable work of an experimental nature on cast ammunition, including semisteel shell, was also done before the war by Major Prache of the French army. As is well known, the production of semisteel in the cupola for the manufacture of castings for various civilian purposes was brought to a high state of perfection in the United States prior to the war. In fact, as far as information on the metallurgy of semisteel is concerned, together with data on the corresponding cupola practice, the United States

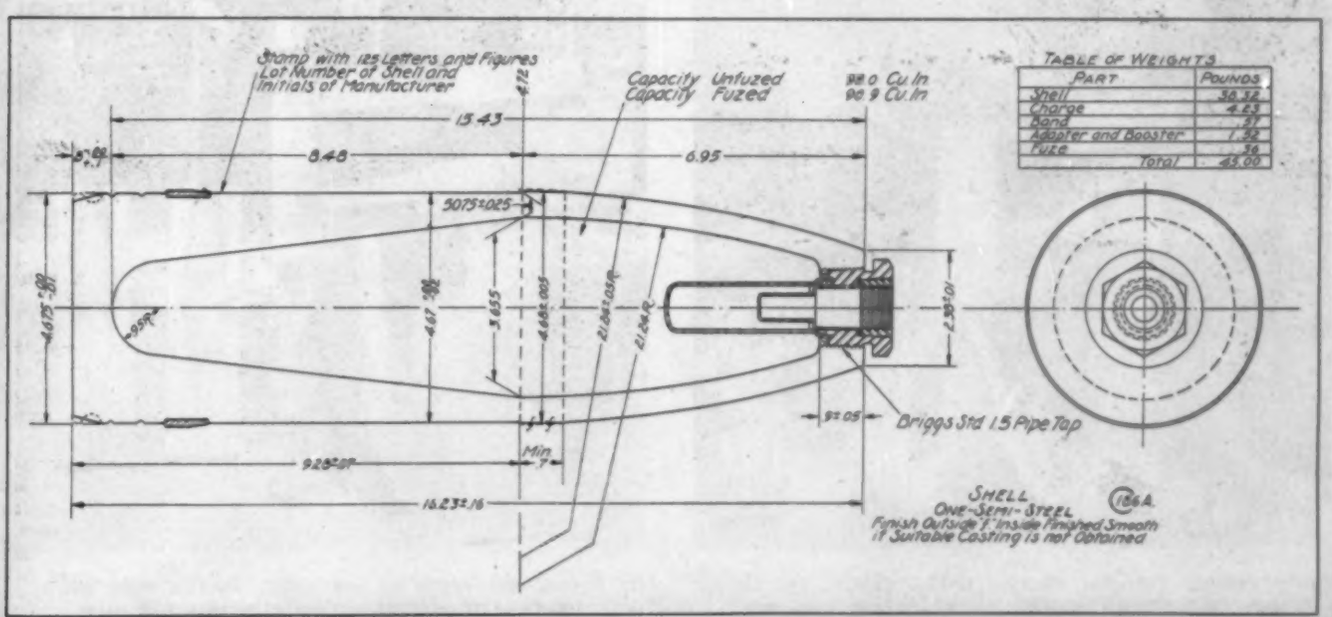


FIG. 2—DRAWING OF STANDARD 4.7 CAST SEMISTEEL SHELL INDICATING MACHINING OPERATIONS NECESSARY

was in an extremely favorable condition to proceed with its cast shell program.

Prior to the battle of the Marne, however, the fund of experience on the behavior of semisteel projectiles in actual warfare was exceedingly meager. Subsequent to that battle an alarming shortage of ammunition developed on both sides and late in 1914 and early in 1915 the French began the manufacture of semisteel shell on a large scale. Since that date this form of ammunition was used extensively in the French army. A large amount of experience on the efficiency of semisteel shell under battle conditions, therefore, has been obtained. It was found as a result of this experience that semisteel projectiles have a definite and recognized place in a well-balanced ordnance program.

A good semisteel shell should possess the following characteristics. It should be as easily made as a cast-iron shell. It should have a firing efficiency approaching that of a steel shell. It should be absolutely safe. The latter point cannot be emphasized too strongly. The fact that the lives of our own men depend upon the reliability of the shell should never be overlooked. To this end the shell must be accurately finished. It must also have proper balance, correct fragmentation, and such rigidity

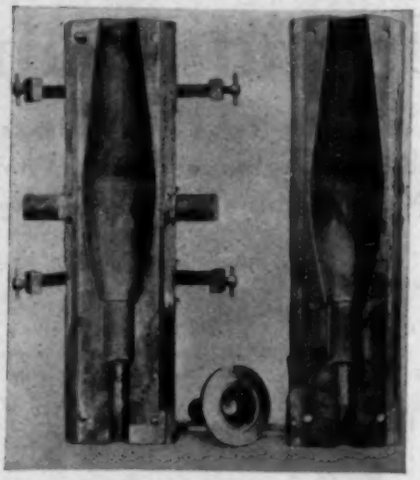


FIG. 3—HALVES OF CORE BOX AND LOOSE CAP USED TO FORM ROUND NOSE ON THE CORE

that it will not plug the gun and cause an explosion. In addition the shells taken as a whole must be uniform. The fiftieth shell fired in a given action should be just the same as the first one.

The efficiency of a semisteel shell depends upon the resistance of the envelope when the projectile arrives at the target, upon the explosive ratio and the fragmentation. The explosive ratio is the ratio of the weight of the explosive contained in the shell to the total weight of the loaded and primed shell. Against earthworks it has been shown by numerous experiments that the effects of bursting are nearly independent of the envelope and depend only upon the weight of the explosive. On the other hand the envelope should not break due to shock on arriving at the target, as this would cause a misfire or an incomplete burst. Shells fired against troops should explode so that as many fragments as possible weighing more than two grams are obtained. The requirements for safety in handling and firing semisteel shell are that the envelope should resist the effects of shock at the moment of firing, that it should be airtight, and that the interior surface of the shell should be totally without unevenness or rough places.

With metal of proper composition the fragmentation of semisteel shell is satisfactory. French experiments have shown that a good semisteel shell bursts so that 55 per cent of the fragments weigh more than five grams.

The complete United States government specifications for semisteel shell contain certain features to which special attention should be directed.

The castings must be free from

FIG. 4—RAMMING CORE BOX SHOWING SPECIAL RIGGING FOR HOLDING BOX IN POSITION—THE TWO HALVES OF THE CORE BOX ARE SHOWN IN THE FOREGROUND

FIG. 5—CORE BOX SWUNG TO HORIZONTAL POSITION WITH ONE-HALF DRAWN—NOTE SUPPORT MEMBER BENEATH LOWER HALF OF CORE BOX

FIG. 6—CORE BOX TURNED AND IN POSITION FOR REMOVING CORE—BOX IS RAPPED WHILE CORE IS BEING DRAWN

FIG. 7—FINAL OPERATION IN MAKING CORE REMOVING THE COMPLETED CORE READY FOR DRYING RACK

blisters, blow holes and cracks, except that slight imperfections on the cutside of the shell in front of the position to be occupied by the rotating band may be allowed, provided they do not extend to a depth of more than one-quarter of the thickness of the wall and do not exceed ⅛ inch in diameter. The inside of the casting must be smooth. Each casting on being struck with a hammer must give a clear, metallic ring. All projectiles are subjected to a hydraulic test for 15 seconds. Shell 6 inches in caliber and smaller shall be tested at 4500 pounds per square inch. Projectiles larger than 6 inches in diameter shall be tested at 3000 pounds per square inch. All shell which show any leakage or a permanent expansion of more than 0.001-inch per inch of caliber will be rejected. Gas shell are given an air test in addition.

The specifications also provide that test bars shall be taken from the pouring ladle at each cast. These test bars must be cast in vertical baked sand molds from which they shall not be removed until they no longer show the color of heat. A round bar, 1¼ inches in diameter, machined to a diameter of 1.128 inches for a minimum length of 4 inches, is specified for the tensile strength test. The breaking strength shown by these bars must be at least 32,000 pounds per square inch. In addition bars 1½ inches square must be cast and subjected to an impact test. For this purpose the bar is supported on two knife edges 6 inches apart and a weight of 25 pounds is caused to fall exactly on the middle of the test bar so supported. The test, it is specified, begins with the weight at a height of 12 inches and is repeated with the height of the weight increased by ½ inch intervals until the bar breaks. The height of fall when the bar breaks must be not less than 18 inches.

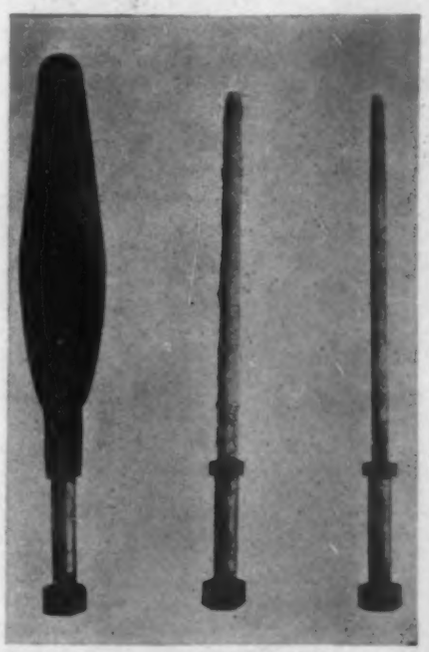


FIG. 8—COMPLETED CORE SHOWING THE HOLLOW ARBOR USED AND THE BURLAP WRAPPING WHICH PROVIDES ADHESION

The tensile strength is made in a machine of standard construction with the tension grips so arranged that the bar is subjected to a straight pull. For this purpose grips arranged to screw over threaded ends of the bar are preferable. The impact test is made in a special machine, resembling a small pile driver, which will be described in detail later.

In order to calculate the quantity of raw materials necessary to turn out a given number of shell, as well as to determine the capacity of the apparatus used in the foundry for making the castings, the weight and dimensions of shells of various sizes must be known. The dimensions are shown on the accompanying drawings of 4.7-inch shell, Fig. 2. The tolerances also are shown on these drawings. It will be noted that the 4.7-inch shell is 16.23 inches in length with a wall thickness forward of the bourrelet of approximately ½ inch. The outside diameter of this

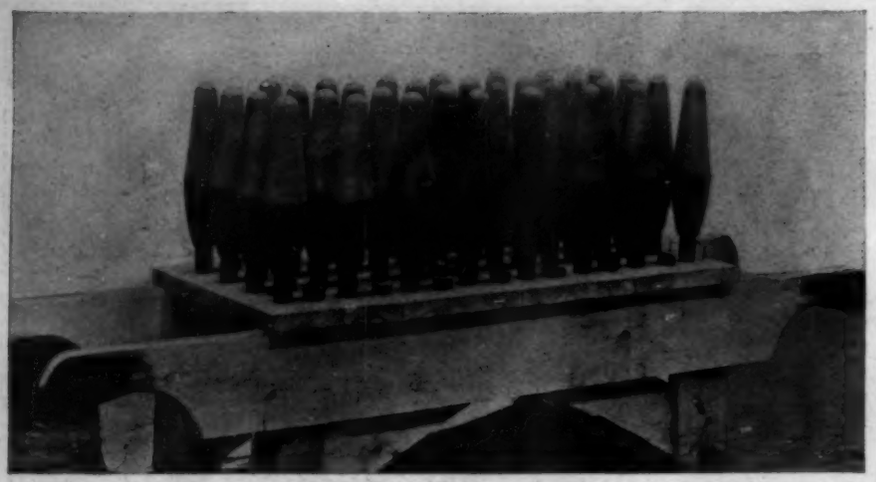


FIG. 9—RACK FOR HANDLING CORES FROM CORE ROOM TO THE FOUNDRY

shell at the bourrelet is 4.16 inches. The core for the 4.7-inch shell, measuring from the outside of the nose, is approximately 15.4 inches in length with a maximum diameter of 3.655 inches. The core is bottle-shaped as indicated in Figs. 3 and 8, that for the 4.7-inch shell having a volume of 98 cubic inches. The adapter is screwed into the nose on a Briggs standard 1½-inch pipe thread.

The 155-millimeter shell is 22.7 inches in length overall with a diameter of 6.08 inches at the bourrelet. The walls are approximately 0.66 inch in thickness forward of the bourrelet. The adapter is screwed into the nose on a 1½-inch standard pipe thread. The core is approximately 21.5 inches in length with a maximum diameter of 4.7 inches. The capacity of the shell, unfused, is 234.3 cubic inches.

It is important to know the weight of the shell at three stages of its manufacture, namely, (1) rough as it comes from the sand with riser and nose attached, but with core removed; (2) as delivered to the machine shop with riser and nose cut off; and (3) after machining.

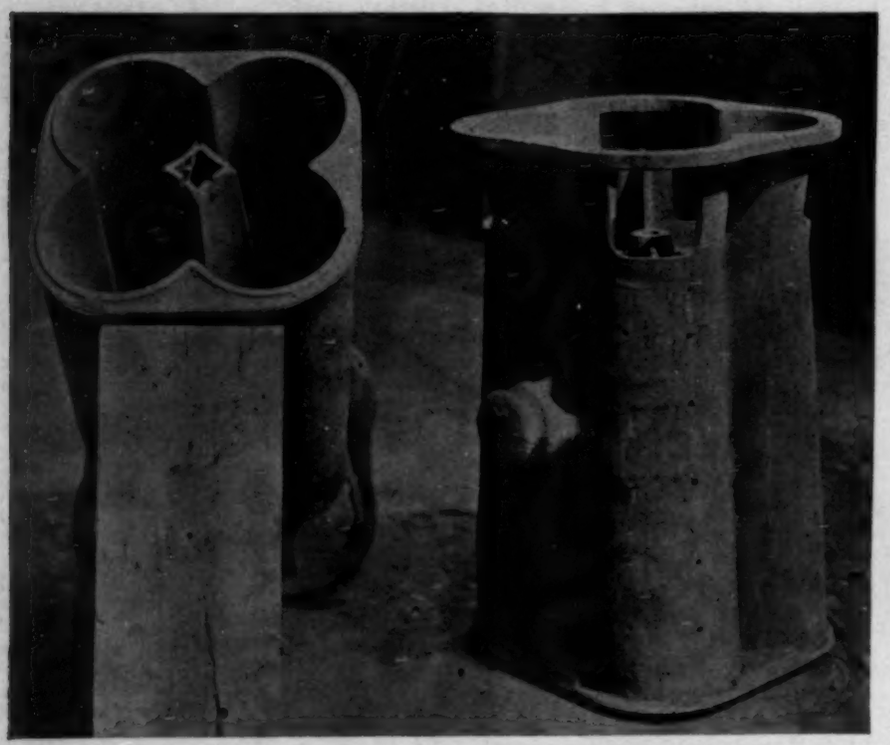
It also is advisable before considering the casting operations in detail to be familiar with the weights which it will be necessary to handle in the shop. For this purpose the following figures are presented. Most of the shell are molded on jarring machines in quadruplicate in cast-iron flasks. The quadruple flask for the 155-millimeter shell with the sand and patterns in place weighs approximately 1390 pounds. With the patterns for the four shells removed, the flask and sand alone weigh 1090 pounds, the weight of the sand being 290 pounds. The quadruple flask for 4.7-inch shell with patterns and sand in place weighs 900 pounds; with patterns drawn this weight is reduced to 700 pounds for the flask and sand alone. The weight of a 75-millimeter quadruple flask, rammed up with patterns in place, is approximately 450 pounds. This figure is reduced to 300 pounds for the net weight of the flask and sand.

Methods of Production

Generally speaking, three methods of casting semisteel shell have been developed involving the employment, respectively, of green-sand, dry-sand and permanent iron molds. In each case dry-sand cores are used. The green-sand method was best adapted to conditions existing in the average American foundry.

For casting semisteel shell in green-sand molds, the following general procedure was found satisfactory:

The flask, pattern and corebox equipment used by the American Radiator Co. is made of cast iron specially designed for the work at hand. Details of this equipment will be presented later. The shells are molded nose or ogive downward, with four castings in each flask for shell up to 8 inches in diameter. A coarse, open, lightly bonded molding sand is employed. Maximum economy is obtained by jar-ramming the molds on a plain jolt machine and in all cases the quadruple flasks were so rammed. It is believed, however that the single flasks for 4.7-inch and 155-millimeter shell can be profitably hand rammed, if suitable molding machine equipment is not available or obtainable. This statement is made in view of the relatively small amounts of sand which the recommended form of single flask contains. In neither case is the flask rolled over during the operation of making the mold. The hand-ramming process necessitates the employment



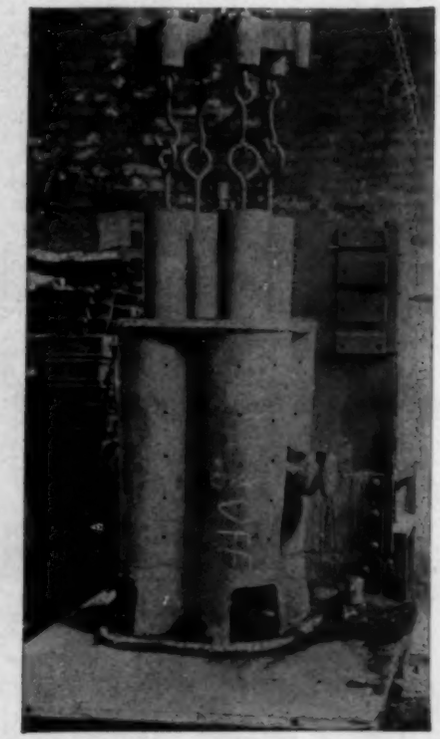


FIG. 10—FLASK ASSEMBLY FOR MOLDING FOUR SHELLS IN ONE OPERATION. NOTE OPENING WHERE CORE IS ATTACHED. FIG. 11—FOUR PART FLASK ON JAR RAM MACHINE WITH PATTERNS DRAWN IN A SINGLE OPERATION

of men possessing relatively greater skill than those required for machine molding, and that under almost any conditions more uniform results will be obtained from jar-ramming. Since there are no projections or external pockets on the casting, it is molded in a one-part flask, the entire casting being in the drag. The single flasks are usually made in two parts, split along the axis and bolted together. This is for convenience in molding the flask itself. The quadruple flasks are cast in one piece. In either case, a dry-sand pouring basin takes the place of the cope, and a drop gate of the strainer type is employed. The riser has the same diameter as the butt of the shell and usually a height equivalent to the diameter.

The dry-sand core is made on a steel arbor, which fits accurately into a hole or socket in the bottom of the flask, the core being clamped securely by means of a nut on the end of the arbor. The socket through which the core arbor extends and is locked to the flask is shown in Fig. 10. A split corebox is used, the core being rammed endwise. Other methods of making the core also may be employed and will be described in detail later.

The metal must be carefully melted and poured as hot as possible. From 20 to 30 per cent of steel scrap is employed in the mixture. Detailed analyses will be presented further on. In general, the total carbon plus silicon for castings 155 millimeters and larger should equal aprpoximately 4.40 per cent; for 75-millimeter shell the total carbon plus silicon should equal 4.70 per cent. The castings should be cooled slowly in the sand and not shaken out until they are black. An air hoist of the vertical cylinder type is usually employed for shaking out the molds.

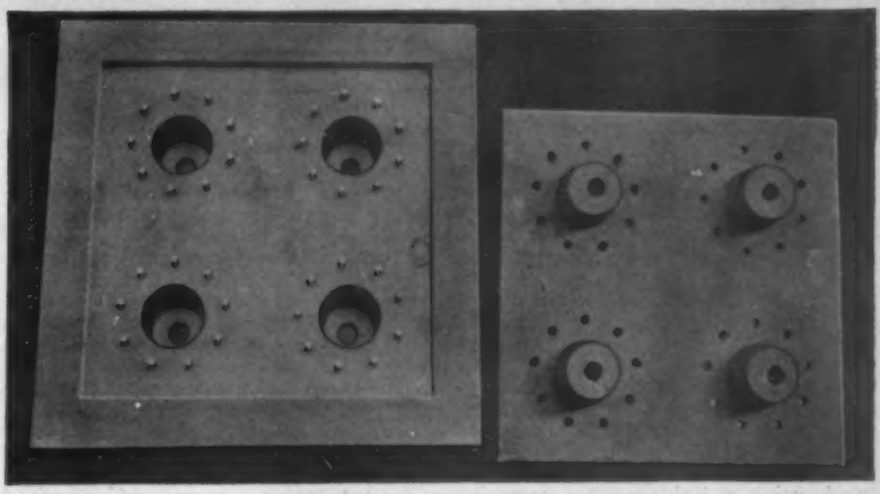


FIG. 12—BOX USED FOR MAKING CORE FOR COPE OF FOUR PART MOLD—THE COPE CORE WITH VENT STACKS FOR ESCAPING GAS IS SHOWN AT THE RIGHT

The shell may be cleaned effectively on the outside by tumbling. The inside may be cleaned by sand-blasting, although the wire-rope type of cleaning machine which will be described later has been employed extensively.

A study of the situation revealed that several methods may be employed for making the cores successfully. The core is an exceedingly important part of the job and it must do the work for which it is intended in a flawless manner. It must produce a shell which is free from imperfections on the inside, as specifically provided in the specifications; in addition, the core must be centered with extreme accuracy in order that the shell may be concentrically balanced.

The method of making the cores which has behind it the greatest weight of experience at the present time is illustrated by the accompanying illustrations of operations submitted by the American Radiator Co.,

FIG. 13—LOWERING CORE INTO THE MOLD—THE COMPLETED FLASK WITH COPES IN PLACE ARE SHOWN IN THE BACKGROUND. FIG. 14—INGENIOUS ARRANGEMENT OF ROTATING WIRE CABLE FOR CLEANING INSIDE OF COMPLETED SHELL

Figs. 4, 5, 6 and 7. As these illustrations show, the cores are made in accurately machined cast-iron boxes and are dried at a definite temperature while supported on their arbors in racks of special construction. After drying they are dipped in blacking and redried before being delivered to the molding floor.

It will be noted the core boxes are made as light as possible and are properly ribbed to insure stiffness. The boxes are in two parts, split parallel to the axis of the core. A simple clamping device is provided for holding the two parts of the box together while the core is being rammed up. The arbor passes through a machined hole, similar to that provided in the flask, and is clamped rigidly in place by a thumb nut. The core is rammed from one end by hand, using a light wooden ramming stick, the rounded upper or rear end being formed by a detachable nosepiece which is fitted on the top of the box as one of the final operations in making the core. The box is provided with trunnions on which it may be swung into a convenient position for ramming and unclamping. The trunnions are supported by a wooden frame of special construction shown in Fig. 4.

The arbors are made of extra strong wrought-iron pipe, ½-inch pipe being employed for the 4.7-inch and 155-millimeter shell. For the latter the arbor has an overall length of 27 inches. The ferrule or seat portion which fits into the flask is 5¾ inches in length for 155-millimeter shell. The clamping nut works against a ½-inch collar, which is forced on the arbor as shown in the accompanying Fig. 8. To provide for the escape of the gases when pouring the mold the arbor is drilled with ⅛-inch holes throughout its length.

To provide a surface to which the sand may cling more satisfactorily the arbors are wrapped with strips of burlap about 3 inches wide. The sand in the 155-millimeter core weighs 13.0 pounds and the arbor 16.5 pounds, the total weight being 29.5 pounds.

The Core and Mixture

The core sand is carefully compounded and prepared in a paddle-type mixer to insure a uniform product. The following sand mixture is found satisfactory: Eight shovelfuls of old molding sand; 3½ shovelfuls of lake sand or silica sand sifted through a No. 4 riddle; four shovelfuls of green-molding sand; and one shovelful of sawdust, to which is added 1½ pints of molasses.

In ramming up a core 12 operations are involved, as follows:

OPERATIONS

1.—Oil interior of box.
2.—Set arbor, previously wrapped with burlap in half of box.
3.—Close and clamp box.
4.—Fill box with sand.
5.—Ram lower part of core around arbor with curved ramming stick.
6.—Place small woden hopper to hold surplus sand on top of corebox and finish ramming.
7.—Place three nails in top of core.
8.—Set nosepiece on top of box.
9.—Ram nosepiece full of sand using a large nail.
10.—Take off nosepiece, thus forming rounded end of core.
11.—Unclamp corebox.
12.—Swing box and take out core.

As previously mentioned the cores are supported on their arbors from a rack for drying. A car-type oven is employed and the rack that carries the green cores forms a part of the car. The cores are dried in batches of about 100. The cores may also be dried by setting the arbors in sockets provided on the car, thus supporting the cores in an upright position.

The cores for 155-millimeter shell are baked about 3½ hours at from 400 to 450 degrees Fahr. The cores for 75-millimeter shell need not be baked more than an hour. After baking the cores are dipped in a special blacking in order to give them a proper finishing. This blacking is made as follows:

Mix three parts of mineral facing with one part of finely ground graphite and dilute with water and fine Jersey clay to a creamy consistency, using only enough clay to give the necessary bond. After the clay is added the blacking should be tested to be sure it is sufficiently viscous. In other words it should stick properly to the sides of the core. To test it, moisten the finger in the blacking and blow on the finger nail; a film of small black grains should adhere; if there is too much clay a large number of white grains will appear mixed with the black. When the core is dry the blacking should not stick to the hands. If it does it probably does not contain enough clay.

The cores are blacked by dipping, this operation being performed after the termination of the drying period. After dipping, the blackened cores are again placed in the oven and redried for about 45 minutes. When they come out of the oven a second time the cores are ready to be delivered to the molding floor. For this purpose the transfer rack shown in Fig. 9 is provided.

As an alternative method of making the cores, a plain oil-sand mixture with a ratio of approximately 1 to 60 or 70 may be employed and the cores blown by compressed air in a machine of the Demmler type. Uniform cores can be obtained by this method and one machine should turn out roughly 50 cores per hour. The cores are dried in a perforated dryer, resting on one side. An arbor similar to that previously described is employed, although it is not customary to wrap the arbor with burlap. These cores may be made oversize and

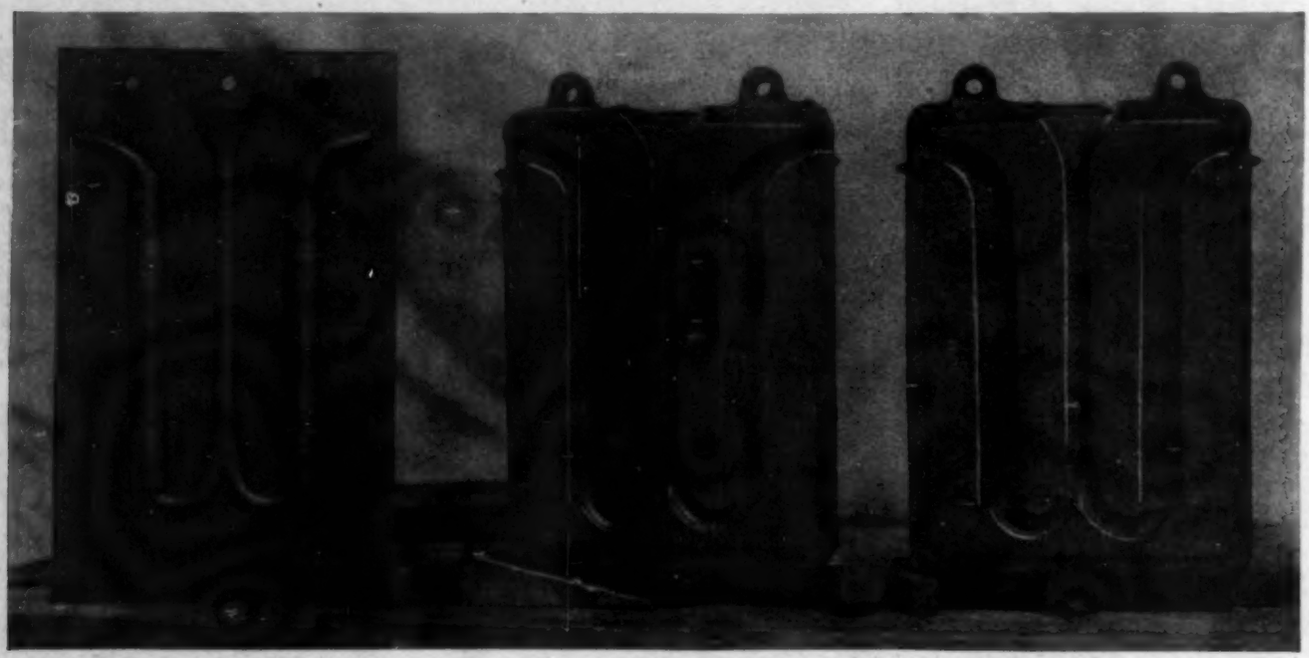


FIG. 15—FLASKS AND PATTERN FOR MOLDING TEST BARS—NOTE THE LIBERAL GATES AND RISERS

ground to accurate contour on a form grinder.

Such experiments as were conducted along this line on cores for semisteel shell seem to indicate that owing to the bottle-like shape of the core, it is difficult to ram it properly and to prevent it from being soft at the top. Also it shows a tendency to split when jar-rammed due to the whip of the arbor.

Molding Operations

The quadruple flask proved the most economical and satisfactory for shell of medium size. The 75-millimeter shell can be molded six or eight in a flask, while single flasks appear preferable for sizes larger than 8-inch. The flasks are made of gray iron.

The construction of the quadruple flasks is clearly shown in the accompanying Figs. 10 and 11. It will be noted that they are heavy and rigid, built for rough handling. For jarring-machine use the lower flanges are machine finished to an even bearing. The holes through which the core arbors pass also are acurately finished. In cross section, the quadruple flask is shaped like a four-leafed clover, each shell mold fitting in its individual pocket which contains just the requisite quantity of sand. This flask is designed to use the minimum possible quantity of sand, and to this end a projection extends up through the middle where otherwise there would be dead sand.

The patterns are gray iron, turned and finished to conform to the contour of the shell. An arbor of the same diameter as the core arbor is fitted into the nose or ogive end of the pattern. When the pattern is set in the flask this arbor extends through the hole provided in the flask for the core arbor. It also is threaded similarly to the core arbor, thus making it possible to clamp the pattern firmly into position by means of large thumb nuts. The upper end of the pattern is fitted with a ring for the purpose of drawing it from the sand. By means of a yoke suspended from a cylinder-type air hoist, the four patterns in the quadruple flask may easily be drawn at one time. The use of combination jar-ramming and pattern-drawing molding machines has been suggested but it is doubtful if any of the standard machines have sufficient length of draft. The flask is not rolled over. The pattern is made with considerable draft and therefore it comes out of the sand easily. The slight reverse taper on the butt end of the shell is obtained in the machine shop.

The sand used is coarse and weakly bonded to provide for the free escape of the gases. For 4.7-inch and 155-millimeter shell No. 4 or No. 5 sand will be found satisfactory.

For turning out shells up to 155-millimeter a jarring machine with a 24-inch table is used, if the quadruple flask is employed. The machine, of course, has a lifting capacity in excess of 1400 pounds, which is the approximate weight of the flask, sand and pattern.

The method of making the mold, using the quadruple flask is clearly shown in the accompanying illustrations. A plain jar-ramming machine of ample capacity is used. To get the maximum production, duplicate pattern equipment is provided. This eliminates the delay which otherwise occurs while the patterns are being fitted in the flask, since the duplicate equipment makes it possible to fit up one flask while its mate is being rammed up on the machine. On each floor two men operate the machine together with two others to ram-up the pouring basins, set the cores and close the molds. Each floor or unit, including one jar-ramming machine turn out about 100 molds per day, 10 hours, thus giving an output of 400 shells per floor per shift.

The details of the pouring basin which is set on top of each flask and takes the place of the cope, are shown clearly in Fig. 12. This part of the job consists essentially of a dry-sand core surrounded by a metal jacket in which enough green sand is rammed to form a basin. The jacket is provided with guide pins in order accurately to center the basin over the four molds in the quadruple flask. The pouring basin is provided with four drop gates, one for each shell, of the type frequently employed in casting automobile cylinders. This gate consists simply of small holes about ¼-inch in diameter arranged in the dry sand floor of the pouring basin in the form of a circle slightly less in diameter than the shell, there being one such circular strainer for each casting. In addition, a dry-sand vent about ½-inch in diameter extends above the surface of the molten iron in the basin, over the center of each mold, in order to provide suitable exit for the gases coming off the main core. The pouring basin is made by hand on a bench, the dry-sand core which forms its principal element having been previously made in the same manner using the pattern shown in Fig. 12.

There are approximately 17 operations involved in making each mold. These operations may be tabulated as follows:

OPERATIONS

No.

1.—Turn flask over by means of air hoist.
2.—Set and clamp four patterns by means of thumb nuts.
3.—Blow or brush surplus sand off molding machine table.
4.—Set sheet-iron hopper on top of flask to carry surplus sand.
5.—Two men shovel sand into flask, flask being on floor.
6.—Hoist flask to table of jar-ramming machine.
7.—Clamp flask to machine.
8.—Bump mold 70 to 90 times.
9.—Take off hopper carrying surplus sand.
10.—Butt peen top of mold with hand-rammer.
11.—Strike off sand and swab around patterns.
12.—Unclamp flask and patterns.
13.—Draw out four patterns at one time, using yoke, immediately resetting patterns in empty flask.
14.—Transfer flask to floor.
15.—Black interior of mold with plumbago, using brush and fingers—blow out excess dust.
16.—Set and bolt cores firmly in place.
17.—Set pouring basin on top of mold and clamp in position.

The operations involved in preparing the pouring basins are as follows:

OPERATIONS

No.

1.—Set jacket on bench and insert core and pattern.
2.—Fill with sand.
3.—Ram with small bench rammer.
4.—Strike off.
5.—Draw pattern, leaving strainer gates and vent cores exposed, thus finishing pouring basin.
6.—Transfer to mold and clamp in place.

The metal used for these shell is obliged to meet rigid chemical requirements. The limits for shell of 155-millimeters and larger are as follows:

	Per cent
Silicon	1.10-1.30
Phosphorus up to	0.35
Manganese up to	1.00
Sulphur	0.08-0.12
Total carbon	3.10-3.20
Graphitic carbon	2.40-2.00
Combined carbon	by difference
Silicon + total carbon	4.40

For 75-millimeter shell silicon up to 1.40 per cent may be employed together with manganese up to 0.90 per cent; total carbon 3.20-3.35 per cent; graphitic carbon 2.50-2.70 per cent; the sum of the total carbon and silicon being equal to 4.70 per cent.

A typical cupola charge to meet the foregoing requirements for 155-millimeter shell is as follows:

ANALYSIS

	Pounds	Si.	P.	Mn.	S.	Te.	GC
Buffalo Pig No. 3	300	1.82	0.670	0.56			
Wickwire Pig No. 3	330	2.01	0.560	0.82			
Steel (shell Butts)	620	0.10	0.042	0.78			
Remelt	700	1.31	0.290	0.76			
Ferrosilicon	50	12.00	0.070	....			
Ferromanganese	6			80.00			
Calculated analysis		1.39	0.310	0.93			
Analysis by Laboratory	6	1.19	0.300	0.73	0.117	3.14	2.40
Total							2006

The foregoing provides for a single charge weighing 2006 pounds. This is designed for a cupola 66 inches in diameter inside of lining. The cupola was being operated at the time on light heats. If heavy heats were poured the charges would be doubled or brought up to 4000 pounds each. The coke bed in the cupola in question is brought to 36 inches above the upper tuyeres. To melt the 2006 pound charge detailed above, coke charges of 275 pounds each are employed together with limestone charges of 250 pounds each. A blast pressure of from 14 to 16 ounces is employed. The cupola has a rated capacity of about 18 tons per hour. The coke is of the following composition: Fixed carbon, 89 per cent; sulphur, 0.50-0.69 per cent; volatile matter, 1.45 per cent; ash, 9.41 per cent.

Test bars poured from the foregoing heat show an impact test

height of 24 inches. The results of the tensile tests were as follows:

	Pounds per square inch
First ladle of iron	32,690
Second ladle of iron	35,550
Third ladle of iron	36,080

The French experiments on the metallurgy of semisteel resulted in the development of the following general principles:

"It being understood that the amount of carbon is between 2.75 and 3.25 per cent and that all other elements are constant, the strength of the semisteel increases in inverse ratio to the sum of the total carbon and silicon.

"Good semisteel obtained from the cupola should satisfy the following empirical law: Total carbon plus silicon = 4.40 to 4.50 per cent.

"The proportion of silicon should vary in inverse ratio to the caliber of the shell.

"The proportion of manganese should increase in direct ratio to the caliber of the shell.

"The ratio of silicon to manganese should decrease with the caliber of the shell."

The following examples show how medium phosphorus in the pig may be reduced in the mixture by the addition of steel scrap, using a percentage of foundry return scrap. The examples follow:

EXAMPLE No. 1

	Phosphorus per cent
50 per cent pig, phosphorus..0.55 x 50 per cent	=0.275
30 per cent steel, phos.....0.07 x 30 per cent	=0.021
20 per cent returns, phos...0.42 x 20 per cent	=0.084
Phosphorus in mixture, per cent.....	0.380

EXAMPLE No. 2

40 per cent pig, phos.....0.55 x 40 per cent	=0.220
30 per cent steel, phos.....0.07 x 30 per cent	=0.021
30 per cent returns, phos...0.34 x 30 per cent	=0.102
Phosphorus in mixture, per cent.....	0.343

EXAMPLE No. 3

30 per cent pig, phos.....0.55 x 30 per cent	=0.165
40 per cent steel, phos.....0.07 x 40 per cent	=0.028
30 per cent returns, phos...0.27 x 30 per cent	=0.081
Phosphorus in mixture, per cent.....	0.274

EXAMPLE No. 4

Presuming that we have a pig iron with 0.90 per cent phosphorus.

30 per cent pig, phos.....0.90 x 30 per cent	=0.270
40 per cent steel, phos.....0.07 x 40 per cent	=0.028
30 per cent returns, phos...0.42 x 30 per cent	=0.126
Phosphorus in mixture, per cent.....	0.424

A hot fluid metal is essential and it is not believed advisable, to economize on coke to such an extent as to interfere with the fluidity of the metal. The best results are obtained by charging the steel scrap carefully by hand in order to thoroughly distribute it. The French found that charges ranging from 1/6 to 1/8 of the hourly output of the cupola give satisfactory results. The consumption of coke, according to French experience is about 15 per cent of the weight of semisteel produced.

The ideal steel scrap used, of course, consists of crop ends of forged steel shell or shell billets. Next in order comes plate scrap, including clippings and punchings from structural and boiler shops.

The silicon in the mixtures is controlled by the use of 10 to 12 per cent ferrosilicon and the manganese is also controlled by proper additions of 70 per cent ferromanganese. It is impossible, of course, to reduce the sulphur in the cupola and the carbon also is usually increased due to absorption of carbon from the coke.

The test bars are molded by hand in small iron flasks, approximately 10 x 14 inches in size. The details of the molds require a bottom-pour gate, risers and overflow gates for carrying off surplus metal. The patterns for the test bars are split and mounted on plates to simplify the molding operations. The molds are carefully baked in an oven before the bars are poured. The specifications provide that the molds shall not be opened until the bars reach a black heat. It is essential from the standpoint of safety to the artilleryman that the metal in the test bars be identical with that in the shell and that as far as possible it be cast under similar conditions.

The impact testing machine is of the pile-driver pattern and consists essentially of a heavy hammer weighing 25 pounds complete, a mechanism for tripping the hammer and gaging its height by increments of ½ inch, knife edges for supporting the test bar, and a pair of hammer guides which permit it to fall freely and accurately. The tripping mechanism is exceedingly simple and effective in operation. This same statement also applies to the other details of the testing machine. The anvil weighs 1763.7 pounds; the government's specifications call for 1750 pounds.

The tensile testing machine as previously mentioned should be of the standard type. This machine, of course, should have sufficient capacity for breaking the bar. A machine rated at 100,000 pounds will be ample. Threaded grips are used as previously explained.

Before the shells are tumbled or otherwise cleaned it is necessary to saw off the riser and the nose. This is accomplished in a cold sawing machine of standard construction.

The shell is cleaned inside either by sand-blasting or by means of a stiff wire cable mounted vertically in a rapidly revolving spindle. The strands of the cable are separated so that as it is rapidly whirled around in the shell, it acts as a wire brush and completely and quickly removes the adhering core sand. For this operation the shell is suspended in the air, nose down, from a pair of tongs carried in a chain hoist. The details of this form of cleaning machine together with the accompanying tackle for handling the shell are clearly shown in Fig. 14. It is sometimes necessary to further clean the inside of the shell with a chisel bar to remove small projecting pieces of metal.

How Semisteel Shell Are Machined

SHORTLY before the cessation of hostilities, and the subsequent abandonment of the semisteel shell program, the ordnance department published a circular which recommended a standard practice for the manufacture of this class of projectile. The methods outlined in the preceding description of foundry operations are set forth in detail in this pamphlet and in addition the machining and finishing is shown graphically by the series of drawings reproduced on the opposite page. Seventeen distinct operations are recommended following the cutting off of the riser, and the cleaning of the inside of the casting in the foundry.

The shell is first placed nose down in a vertical drill press, and the base is centered by means of a vertical expanding mandrel. This operation takes approximately two minutes. The driving holes are located by a jig with a center stud and the holes are drilled.

A gage is next applied which marks the nose relative to the inside of the base of the shell and allows ¼-inch for finish. The nose end is then cut off to this mark on an engine lathe. A bevel edge of 32-inch is allowed inside for center. The shell is then recentered to exact depth relative to the inside of the base on a vertical drill press with expanding mandrel and face plate and an automatic drill stop.

The shell is then placed on a lathe and the body is rough turned and profiled. A low swing 24-inch or engine lathe with profile attachment is suitable for this work. The body is next finish turned and profiled.

The nose is then bored and tapped, the thread length being governed with relation to the inside bottom stop on the base center. For this work it is necessary to employ a 24-inch turret lathe with hollow spindle for collet chuck. The shell is now reversed and the base is cut off.

The groove for the copper band is turned out and undercut in a lathe equipped with a nose stop and collet chuck. The shell is then weighed and marked for check identification.

Following this, the base is finished and chamfered on a facing machine. In the case of a high explosive shell the base is grooved for the gas check. The groove for the copper band is next knurled to provide a gripping surface for the copper to engage.

The shell is next placed on a plain cylindrical grinder and the bourrelet is finished. It is then removed, the copper band is slipped into place and hammered into the banding groove by hand. A hydraulic press rolls and presses the copper band firmly in place. The copper band is then turned and finished on a band turning lathe with collet chuck. The shell is next tested hydraulically and in the case of high explosive shell the base cover is applied after testing and drying. The final operation is the painting and drying. The inside surface is varnished to prevent corrosion.

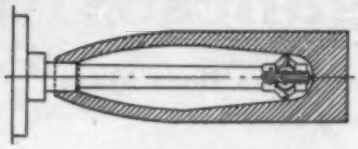


FIG. 1
Center Base

FIG. 2
Drill Driving Holes

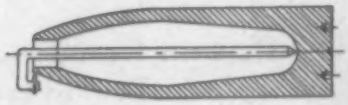


FIG. 3
Gauge and Mark Nose

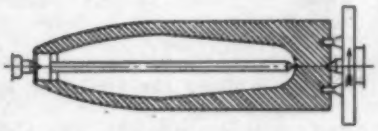


FIG. 4
Cut off Nose End to Mark

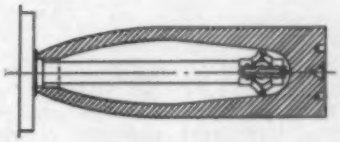


FIG. 5
Re-Center to Exact Depth

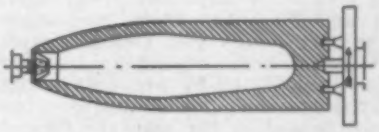


FIG. 6
Rough Turn Body and Profile

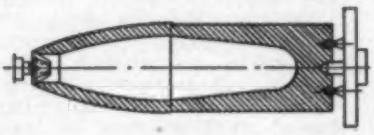


FIG. 7
Finish Turn Body and Profile

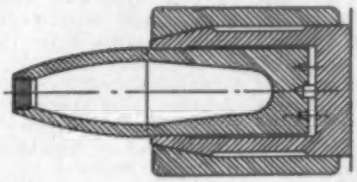


FIG. 8
Bore Nose, Face and Thread

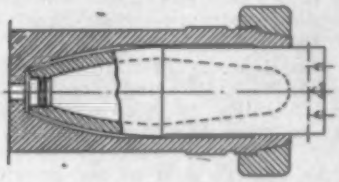


FIG. 9
Cut off Base

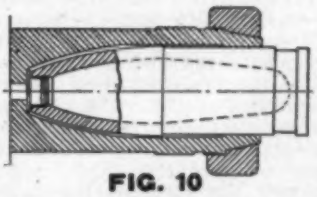


FIG. 10
Band Groove and Undercut

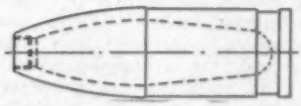


FIG. 11
Weigh and Mark

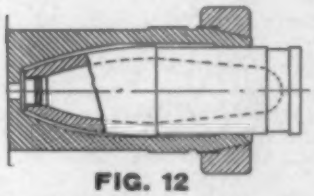


FIG. 12
Finish Base and Chamfer

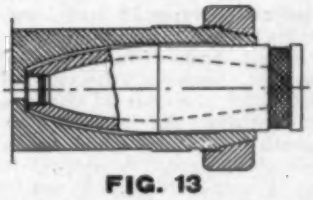


FIG. 13
Knurl Band Groove

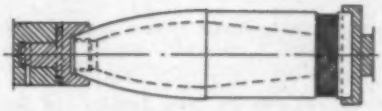


FIG. 14
Grind Bourrelet

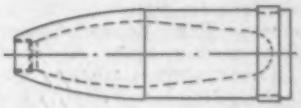


FIG. 15
Copper Band Applied

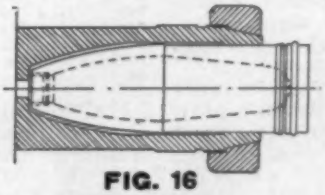


FIG. 16
Copper Band Turned

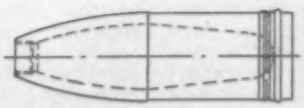


FIG. 17
Paint Shell

Cuba's Chrome and Manganese Ores

Deposits Range from 1 to 50 Feet Deep—Slight Headway Has Been Made Toward Increasing the Output—Ancient Mining Methods Prevent Larger Production

AMONG the minerals essential to the winning of the war, are chromite, about 50 per cent of which during the last few years has been imported from Rhodesia and New Caledonia, and manganese, for which the United States recently has been dependent on Brazil for from 70 to 80 per cent of its supply. In view of the unusual conditions created by the war, the United States bureau of mines in an effort to curtail these importations as much as possible, or at least curtail the importations from long distances, recently completed a survey of deposits of these two valuable ores in the island of Cuba. The work was done under the instructions of Secretary of the Interior Lane.

All the deposits of chrome ore in Cuba that have attracted attention are within 25 miles of the north coast. There are about 12 groups of deposits. One of the most westerly deposits is in the eastern part of the province of Havana and two are in the province of Matanzas. The next group toward the east is in the province of Camaguey. Other groups are in the province of Oriente, one near Holguin and another south of Nipe Bay, and there are three near the coast between Punta Gorda and Baracoa.

All the deposits examined are in serpentinized basic rocks. Fibrous spots resembling asbestos commonly occur in the serpentine near the ore bodies. The deposits range in thickness from 1 foot to more than 50 feet, and reach a maximum length of more than 200 feet. The ore is fine grained to medium coarse grained and varies from spotted material consisting of black grains of chromite, embedded in white or light green serpentine, to solid black material containing little or no visible serpentine. The deposits west of Nipe Bay are in areas of moderate relief. Those near Camaguey are in an area of very low relief. The deposits in the eastern part of the Oriente province, which are the largest, are in a mountainous country and very difficult of access.

Find Small Pockets of Ore

In the eastern part of the province of Havana, small pockets of chrome ore have been found near the village of Canasi. A little mining has been done here, from which about 600 tons of ore have been shipped. In Matanzas province small deposits of ore have been found. A claim about 10 miles west of Cardenas, although only 2 miles from a railroad, as yet has not been worked, and not a ton of ore has been shipped from it. An analysis of a composite sample of ore taken from two bins at this mine gave the results shown under 1 in the following table, and analyses A and B represent samples obtained by trenching separately the two bins of ore:

	1	A	B
Cr_2O_3	43.0	36.52	35.84
Fe	13.0	12.3	11.85
SiO_2	5.4	6.66	6.73
Al_2O_3	15.0	.....	.....
S	Trace	.....	.....
P	None	.04	.03
Ni	Present	.....	.....

The deposits of chrome ore examined in Camaguey province consist of three groups. North of Camaguey a level plain, which extends northward for several miles, is covered with a thin mantle of ferruginous clay and limonite gravel. The deposits lie along the border of this plain. Float ore is found in this zone and broken ore caps 10 or 12 small mounds that rise 5 to 50 feet. In this zone there are also about 15 small outcrops of ore, most of them obscured by broken ore or rock debris. On the surface there is a considerable quantity of ore in the form of broken blocks and coarse float, probably 20,000 tons, and there may be as much more below the surface. The ore is not of uniform grades. Some is fine grained and compact, but the greater part is medium to coarse grained. Ten samples of ore from deposits near Camaguey contained 27 to 36 per cent of chromic oxide, as shown by the analyses tabulated below. Only two of these samples contained less than 30 per cent and few contained more than 35 per cent. The ore is therefore of low grade, but may be suitable for certain purposes. The analyses follow:

	9	10	11	12	13
Cr_2O_3	33.7	33.7	33.8	35.2	36.3
Fe	12.2	12.3	10.9	11.8	10.6
SiO_2	3.9	4.3	4.1	3.9	3.6
Al_2O_3	29.8	30.7	27.0	27.4	26.2
	14	15	16	17	18
Cr_2O_3	35.0	27.4	29.1	34.2	34.1
Fe	11.6	10.7	11.4	11.1	11.0
SiO_2	4.5	4.0	2.4	1.5	1.5
Al_2O_3	26.7	30.2	32.9	28.3	28.7
S	....	....	....	None	....
P	....	....	....	Trace	....
Ni	....	....	....	±0.05	....

Samples 9-11 from the Teire, Leocadia, and Ninas claims, north-northeast of Camaguey; 12-16 from the Nona and an unnamed claim, northeast of Camaguey; 17-18 from the Victoria claim, northeast of Alta Gracia.

Besides the chrome ore deposits examined in the vicinity of Camaguey, others are situated about 20 miles north. In this locality claims which were examined show noteworthy quantities of chrome float, apparently of high grade.

Small deposits occur 7 to 8 miles northeast of Holguin. Several prospects have been dug and one pocket has yielded about 150 tons of ore, which with 25 tons of float, was ready for shipment in March, 1918. Analyses showed some of the ore contained an average of 34.37 per cent of chromic oxide, and that one sample contained 21 per cent of metallic chromium, which corresponds to 30.6 per cent of chromic oxide. One of the larger deposits of chrome ore is on the Caledonia claim about 7 miles southeast of Woodfred. The ore body is tabular in form, and as shown by prospect trenches dug on the outcrop, is 10 to 30 feet thick. Two tunnels cut the ore at levels 100 and 200 feet below the top outcrop. Though the body has not been fully explored along the strike or in depth it may average 20 feet in thickness and may extend 200 feet along the strike to a depth of 200 feet. The ore varies in quality, the better grade carrying as high as 48 per cent chromic oxide.

The deposit contains about 50,000 tons of chrome ore, 25,000 tons of which should carry more than 40 per cent chromic oxide and the remaining 25,000 tons between 34 and 40 per cent. By rough concentration, the low grade ore should yield 15,000 tons of concentrates carrying about 40 per cent of chromic oxide, so that about 40,000 tons of ore of this grade should be available.

The Cayoguan Ore Claims

The Cayoguan group of chrome ore claims are on both sides of the Rio Cayoguan river. An outcrop that extends about 300 feet and covers about 6400 square feet, has been prospected, and what appeared to be a fair sample of the ore, contained 38.1 per cent of chromic oxide. The claims on the left side of the river contain three known ore bodies and hundreds of tons of boulder float ore in an arroyo. The most northerly ore body shows a face 20 feet wide and 15 feet high and has been prospected by an open cut. A sample taken from this cut contained 31.9 per cent of chromic oxide. The middle body, which includes an outcrop 75 feet long and 50 feet high, has been penetrated 35 feet by a cut and a tunnel. A sample from the fines of the tunnel dump carried 25.9 per cent of chromic oxide. The southerly ore body is exposed to a length of about 60 feet and a height of about 40 feet. A sample from the outcrop contained 40.5 per cent of chromic oxide. The following analyses show the general composition of the ore in this locality:

Cr_2O_3	38.1	34.8	31.9	25.9	40.5
Fe	11.7	10.2	11.9	13.0	11.2
SiO_2	.9	2.4	4.3	12.5	1.9
Al_2O_3	27.0	29.0	25.2	20.1	25.7
S	....	....	....	Trace	None
P	....	....	....	Trace	None
Ni	....	....	Present	Trace	Present

The deposits of the Cayoguan group contain probably about 22,500 tons of available chrome ore, but possibly may yield 60,000 tons or more. These estimates include 2000 tons of float ore in the Cayoguan river and a tributary arroyo.

The next deposit toward the southeast is on Saltdero creek. The ore body reaches a depth of more than 100 feet and at one place has a thickness of 25 feet and a length along

the strike of 45 feet. The upper edge crops out about 325 feet above Saltdero creek. Below this outcrop the ore body has been prospected by two drifts, started respectively 50 and 100 feet below the outcrop, and by a crosscut around the hillside about 80 feet distant from and a little lower than the upper drift. The ore is medium to coarse grained. According to analyses the representative ore contains 35 to 41 per cent of chromic oxide, 1.4 to 15 per cent of iron, 1.5 to 5 per cent of silica, 5 to 17.5 per cent of magnesia, and 25 to 29 per cent of alumina. The ore body contains small masses of peridotite, which may reduce materially the quantity of ore available. This deposit contains 10,000 to 20,000 tons.

Ore 100 Feet Above Sea

A small body of chrome ore occurs south of Navas Bay, about 100 feet above sea level. The ore body has been opened by a cut 25 feet long and 5½ feet deep. The ore is not of uniform quality. A representative sample of the poorer grade contained 27.6 per cent of chromic oxide, and a sample of the better ore contained 39.4 per cent of chromic oxide, as indicated in the following table:

	Mixed Ore	Clean Ore
Cr_2O_3	27.6	39.4
Fe	11.9	11.5
SiO_2	8.9	4.9
Al_2O_3	25.3	20.5

The reserves of marketable chrome ore range from 92,000 to 170,000 tons, but only about 2000 tons were available for shipment in 1918, without greater efforts to exploit it. The largest known deposit of chrome ore in the country, those of Caledonia, Cayoguan group and Potosi claims, are in a region difficult of access. They may yield 75,000 to possibly 130,000 tons. With suitable transportation facilities and mining equipment and sufficient labor, most of this ore could be mined and shipped within two years. At the time of the examination only one deposit was ready for production. The next largest group of deposits are near Camaguey. They are easy of access but are of lower grade than those in the Oriente province. They appear to contain 20,000 to 40,000 tons, most of which can be gathered by hand from the surface. Near Matanzas, Cardenas and Holguin there are small stocks that are ready for shipment, perhaps 1000 tons in all. The ore near Holguin is of medium grade, but that near Matanzas and Cardenas is generally of lower grade.

Manganese Ore In Cuba

Manganese ore is found in Oriente, Santa Clara and Pinar del Rio provinces, but only in the province of Oriente does it occur in large commercial quantities. In this province the deposits are in three areas, one north and northeast of Santiago de Cuba, and another south of Bayamo and Baire, and the third on the Caribbean coast. The first two include the only extensive deposits on the island. In Santa Clara province a little ore has been found near the Caribbean coast, and in Pinar del Rio province, a little ore occurs north of the city of Pinar del Rio and farther west near Mendoza. Only the deposits in the two areas in Oriente province give promise of considerable production.

The manganese ores occur principally in sedimentary rocks which are associated with siliceous rock. The sedimentary rocks are in some places nearly horizontal. The deposits in the area south of Bayamo are in the foothills of the Sierra Maestra. The deposits in the area north of Santiago are in a basin formed by the Sierra Maestra on the south and the Sierra de Nipe and del Cristal on the north.

The deposits examined are diverse but may be grouped into three classes. The ore consists largely of pyrolusite, but many deposits contain mixtures of other minerals. The richness of the deposits vary. All mines in the Santiago district are producing ore. The three types of ore deposits and their several subordinate varieties are well displayed here. The ore is mined by hand from open cuts. High grade ore may be selected in mining the richer parts of the deposit, but most of the ore requires mechanical treatment, such as log washing and jigging to free it of clay and other impurities. Though it is possible to obtain a shipping grade of ore, much is now lost in the tailings, because the concentrating apparatus used is simple and crude, and the recovery of finely divided manganese oxides is difficult. The daily production of manganese ore in this district about the middle of March, 1918, was between 280 and 300 tons a day. The approximate average composition of a large proportion of the ore now shipped is as follows:

	Per cent.
Manganese	38.885
Silica	12.135
Phosphorus	.084
Moisture	11.201

The total output of ore during 1918 from the district near Santiago will probably reach 110,000 tons, the greater part of which will contain between 36 and 45 per cent of manganese, only a few thousand tons containing more than 45 per cent. The reserves of merchantable ore in this district are estimated at 600,000 to 700,000 tons.

The manganese deposits in the district south of Bayamo, have been mined but little, and like the Cuban deposits generally, are richer near the surface than deeper. Deposits of "milling" ore are also available here and may be developed. The development of the deposits is handicapped by their remoteness from the railroads and by the lack of good wagon roads. Strenuous efforts are being made in this district to get the ore to market. Some of the ore is now carried 10 to 25 miles on the backs of mules and in oxcarts. Most of the mining operations are on a small scale and rather simple.

No mechanical apparatus for concentrating the ore has been installed in this district. The "cream" of the ore is now being skimmed off and until better roads are available, it is doubtful whether it would be profitable to attempt the mechanical concentration of low grade ores. It was estimated in April that the output of manganese ore from this district during 1918, would probably not exceed 12,000 tons, half of which would be high grade ore carrying between 45 and 55 per cent of manganese, but developments since then indicate a larger output. The reserve of manganese in this district is estimated at about 50,000 tons. This estimate does not include the Los Negros district which lies farther southeast. The Los Negros district is not now producing ore, but engineers who have examined it, believe it may yield a large output of high grade ore.

Can Increase Output

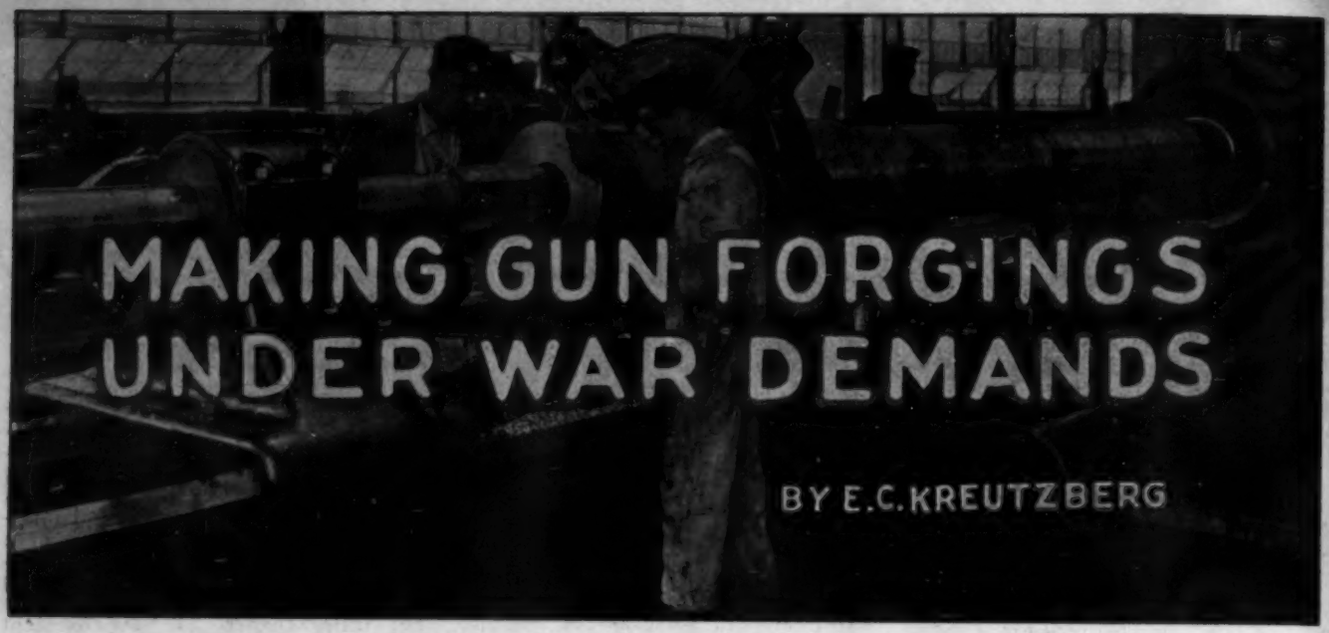
Although the owners and operators of manganese properties in Cuba desire to speed up production while the need for the ore is great and the prices are good, there are certain hindrances, aside from climatic conditions which tend to retard their output. These hindrances can be removed. It has been difficult to obtain and hold a sufficient number of miners because an adequate supply of staple foodstuffs could not be furnished them. Mining has also been handicapped by a shortage of explosives. Difficulties of transportation have been mentioned, and there seems but little chance for improvement without the assistance of the Cuban federal government.

Despite the handicaps, the operators of manganese mines are striving to increase their output and there is a strong interest taken everywhere in Cuba in developing manganese prospects. If railway cars and ships are provided for transporting the ore, food for the mine laborers, and explosives for blasting, the outlook for a steadily increasing production in 1918 and 1919 is good. It is believed that the total output for 1918 should be between 110,000 and 125,000 tons, more than 90 per cent of which will contain from 36 to 45 per cent manganese, the remainder being of still higher grade.

To Make Calcium Carbide

The Gas Tank Recharging Co., main offices, Milwaukee, Wis., is erecting a plant in Keokuk, Ia., for the manufacture of calcium carbide, which will involve a total investment in excess of $500,000. Work is well under way and it is hoped to begin operations by Jan. 1. The plant will be one of the largest of its kind in the United States and for the present will be used largely to fill government orders for carbide from which is manufactured acetylene gas for welding and cutting. It is being located in Keokuk to take advantage of low-priced electric power from the new Keokuk dam, and also the large limestone quarries near that city.

The new works will consist of a limestone reduction plant, coke ovens, and electric furnace, in addition which there is being erected a shop for the manufacture of steel drums used as shipping containers for carbide. The main building will be 60 x 150 feet, of steel and brick, and will be 80 feet high to accommodate two steel lime kilns, of the Stacy-Smith type. A Moore electric furnace equipment with a daily capacity of 30 tons, and a battery of eight bee-hive coke ovens, of the Connellsville type, form other important items. The plant will be served by a Ledgerwood cableway with a 500-foot span, equipped with 5-ton buckets, handling 500 tons of material in 24 hours.



MAKING GUN FORGINGS UNDER WAR DEMANDS

BY E.C. KREUTZBERG

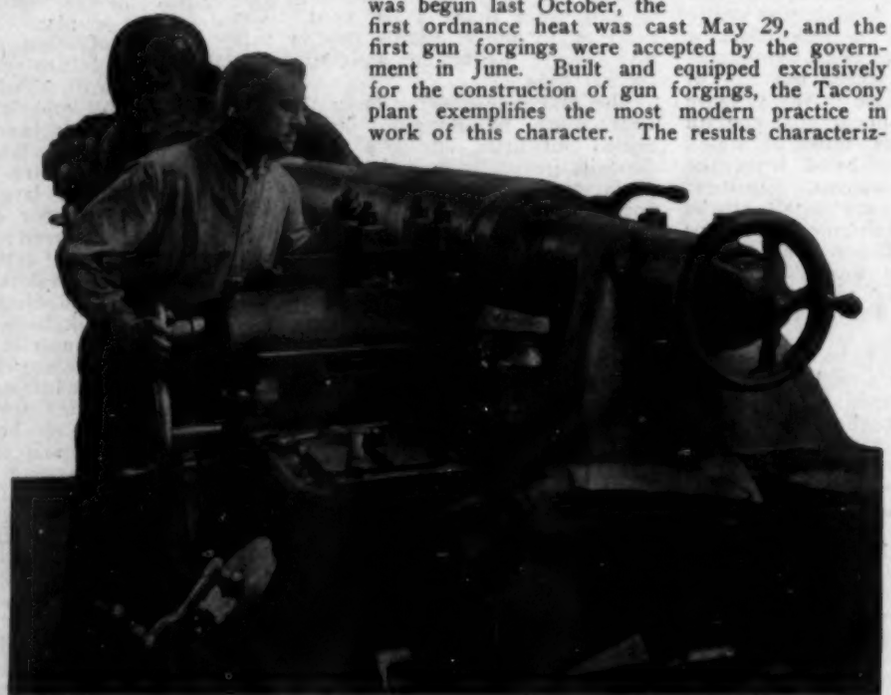
Rough boring a large caliber howitzer tube—the tube is rotated by the chuck at the right and steadied by a 4-jaw backrest—the boring tool is steadied by the bearing seen at the left—this tool works on the principle of a hog-nose drill

PRELIMINARY to the manufacture of large caliber guns, in the United States, the ordnance department of the army sent a commission of experts overseas to gather results of the experience on the battlefields of France. Upon the results of this investigation and study was based a program of the guns to be used, and plans for the erection of plants and facilities for producing them.

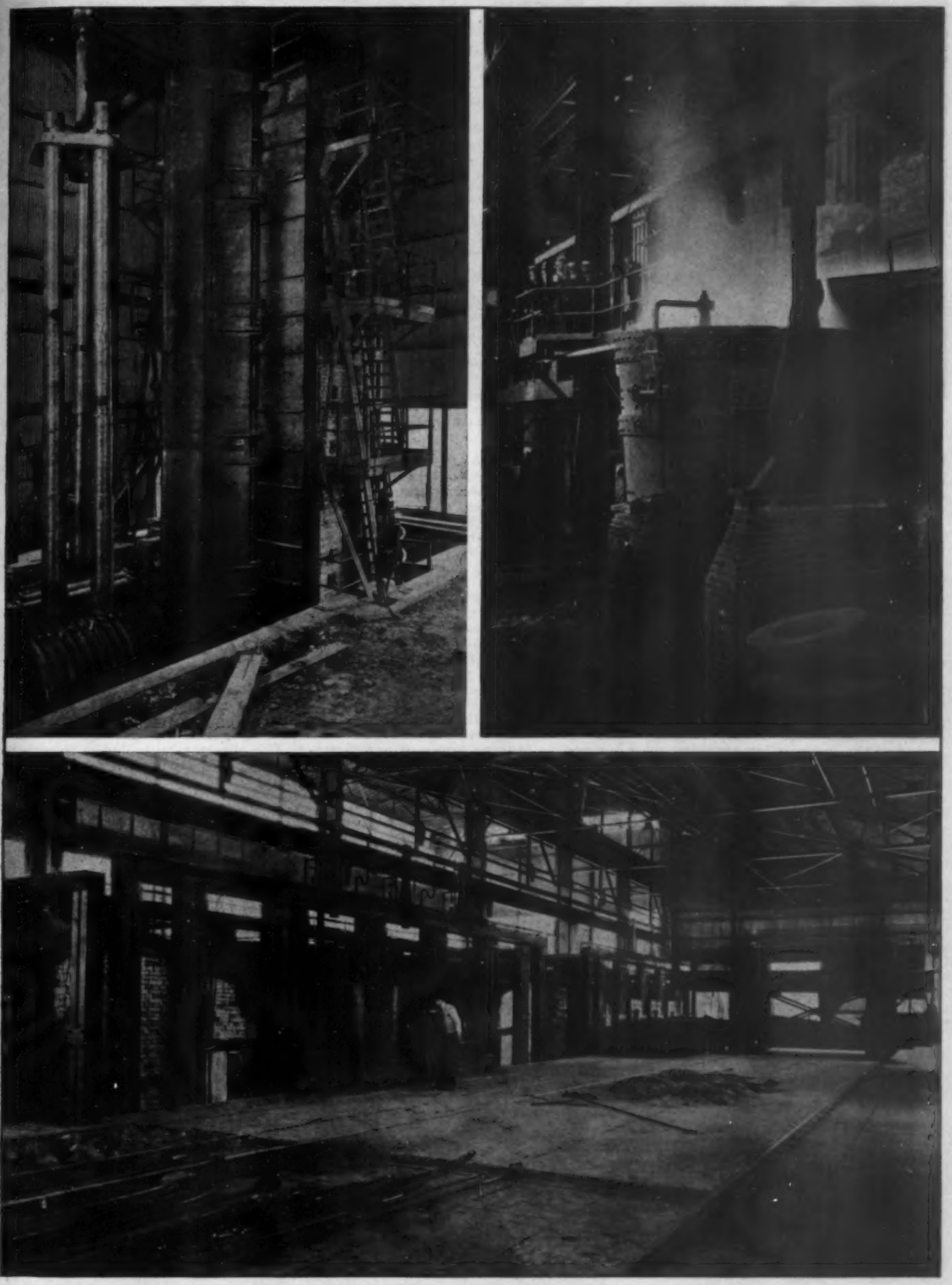
Following the return of the commission from Europe, the ordnance department completed a canvass of the manufacturers having facilities of the nature required for the production of big guns. In the investigation which developed, prime consideration was given to the forge shops of the country, which it was thought, might with some changes and modifications, be adapted to the production of gun forgings. It was soon found that the diversion of forge shops to the manufacture of gun forgings, was to prove an involved task. Not only did the commercial forge shops lack much special heat-treatment equipment and other apparatus required in the production of gun forgings, but great difficulties arose from the fact that gun forgings are in every respect a quality product and quantity can be considered only after quality has been insured. Quality steel, equipment to meet the sharply defined requirements in each stage of manufacture, and the thoroughgoing knowledge and skill for supervising the work, had to be provided. Unremittent efforts resulted finally in the organization of a chain of plants, some producing forgings from steel obtained elsewhere, some equipped to produce steel as well as the forgings, some producing some of the forgings, and some producing breech mechanism parts. A few self-contained plants were built at government expense under expert supervision and these specialize on guns of a definite size and type.

One of the important plants of the latter character is that of the Tacony Ordnance Corp., Philadelphia, which was organized July, 1917. Construction was begun last October, the first ordnance heat was cast May 29, and the first gun forgings were accepted by the government in June. Built and equipped exclusively for the construction of gun forgings, the Tacony plant exemplifies the most modern practice in work of this character. The results characterizing its operation are evidenced by the fact that so far not a single heat or forging produced at this plant has been rejected. Devoted to the manufacture of forgings for large howitzers and field guns, all parts of these weapons are made at the Tacony plant, with the exception of the breach mechanisms. An open-hearth building, forge shop, heat treatment building, machine shop, powerhouse and a metallurgical and chemical laboratory are the main units of the establishment. Other departments include a completely equipped dispensary, storehouses, office buildings and the lunch rooms, rest rooms and other necessary service structures.

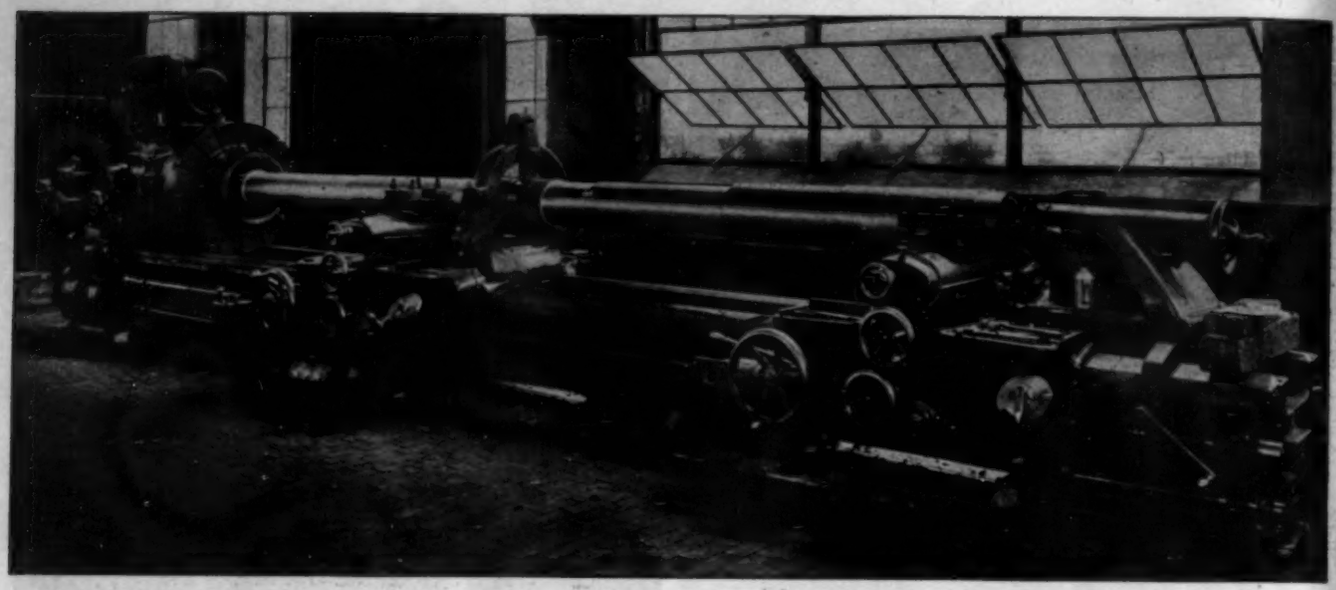
The open-hearth department consists of two 40-ton, acid oil burning furnaces equipped with hydraulically operated, water-cooled doors. A 3½-ton charging crane is employed to handle the charges. The traveling crane equipment consists of one 10-ton and one 30-ton electric traveling crane and one 60-ton ladle crane. The forging department which is the largest of the industrial group, is equipped with one 2000-ton press and one 1000-ton, both steam and hydraulic and fed by eight oil-fired heating furnaces. The presses are served by a 25-ton, a 20-ton and a 10-ton electric traveling crane and three special forging cranes. Adjoining the forge shop is a boiler and pump



TURNING A HOWITZER TUBE—NOTE THE SECURE MANNER IN WHICH THE TOOL IS HELD ON THE REST



THE VIEW AT THE UPPER LEFT SHOWS THREE FIELD GUN TUBES READY FOR QUENCHING—THEY HAVE JUST BEEN REMOVED FROM THE VERTICAL FURNACE IN WHICH THEY ARE HEATED—AT THE UPPER RIGHT IS SHOWN A LARGE BULL LADLE RECEIVING THE MOLTEN CHARGE FROM A 40-TON FURNACE—THE LOWER VIEW IS A GENERAL ONE SHOWING THE CHARGING FLOOR AND TWO 40-TON ACID OPEN-HEARTH FURNACES



ROUGH BORING A LARGE CALIBER FIELD GUN TUBE—LATHES FOR THIS WORK MUST BE EXCEPTIONALLY RIGID

house. The heat treatment is done in a large, modern steel building which is only dimly lighted so that the various shades of heat readily may be visible to the eye. Quenching and drawing furnaces of special design have been installed for the exacting work which is done in this department. In the machine shop, where the forgings are rough-turned and rough-bored, there are boring mills and lathes ranging in size from 12 to 48 inches. Shapers, planers, drills, cranes, etc., make up the equipment.

All raw materials and test pieces from ingots and forgings are tested both physically and chemically in a thoroughly equipped laboratory. The physical examination of the forgings includes the micro-photographing of pieces from the breach and muzzle ends, and from the inside and outside of each forging. In order to aid in off-setting the shortage of workers, the Tacony corporation has trained women to machine test pieces. Women have also been trained to serve as inspectors and to mark the forgings, to observe pyrometers in the heat treatment department and in various other branches. Women also serve successfully as storekeepers and crane operators.

For transporting material throughout the plant, the company has laid two miles of tracks equipped with two locomotives and a number of 25-ton buggies and a locomotive crane. A stock yard, commanded by an overhead traveling crane is used for the storage of pig iron and other raw material. Fuel oil is delivered at the plant in barges and unloaded at the special oil wharf extending into the Delaware river. The oil is pumped to storage tanks of sufficient capacity to meet the requirements of the corporation for two months. Incidentally, oil is used as the fuel throughout the plant except in the boiler house and in the locomotives.

The Tacony Ordnance Corp. was organized in July, 1917. John B. Warren, secretary and manager of the Tacony Steel Co. is president, George Satterthwaite is vice president and general manager, and W. C. Pearson is second vice president and secretary.

Mr. Satterthwaite, who had charge of the construction of the plant and is now managing its operation, previously was connected with the Midvale Steel Corp. for 15 years. He began his career in the forge department of that interest, later was transferred to the main office as assistant superintendent and finally was made general superintendent of the entire plant, embracing the manufacture of both ordnance and commercial steel.

The directorate includes the three officers and Henry Stetson of New York. The Tacony plant was designed to permit of future extensions and the present site will allow an enlargement to three times the present size.

Australia Scotches German Trade Snake

WITH the attention of the world focused on Germany's veiled interests in other countries, Germany through the greater period of the war has managed to hide from her enemies industrial operations carried on within her own borders. Even to faraway Australia, through the firm of Merton's, the ramifications of the great German organization, Metallgesellschaft, were reaching to the vitals of that nation's industries until Australia recently discovered the connection and suppressed the company. The facts in the case were made public by William Morris Hughes, the premier of Australia.

The case is more than typical and for that reason its story is told. Should the firm come to life again and be permitted to do business it will represent once again the power of enemy efforts in peace. The English branch was a tentacle or "feeler" of one of the most vital forces of Germany which was enveloping the world in its coils. Its heart was at Frankfort-on-the-Main.

One of its original trump cards was that it let its nonGerman associates and directors have a share in the profits while primarily it worked for Germany; for the commercial aggrandizement and the puissance *germanique*, as a French expert in the industry expressed it to me. It was for this that the world units, all children of the parent house, were given birth. The procedure was one of the most potent of all the forces working for Germany abroad. Even Krupps, whether they sold armament to a friendly nation or a few hundred pounds of spikes of a certain size on an order that no one else would fill, worked to the same end. The great steamship companies and the steam-heating fittings companies all branded their goods "made in Germany".

The English company of Merton's for three years after the beginning of the war was still doing business at the old stand. Twelve months after the beginning of the war England was still buying raw material of this firm, according to Mr. Hughes. It was through this agency also that England bought nickel, except that which was supplied it by the firm of Mond.

Merton's was founded by Wilhelm Merton, of Frankfort. Under various names it operated throughout the world, one branch operating in London as the American Metal Co., another as the African Metal Co., and still another as the Schweitzerische - Gessellschaft en Suisse, a hyphenated name with half French and half German complexion, but, *au fond*, always for *Deutschland uber alles*.

In Australia—and here is where Mr. Hughes speaks with competance—this German organization was called the Austrialian Metal Co., although there was nothing "metallically" Australian about it. The German procedure was to hide its complexion under the cloak

of naturalization. It succeeded so well that the company soon had its grip on the big metal industries of the Australian continent. The Metallurgische Gesellschaft had, by the time the war broke out, controlled many of the world's metal sources, determined the manner in which the metal would be produced and the prices at which various products would be sold throughout the world.

A further comment made by Mr. Hughes was to the effect that the *soi-disant* American Metal Co. operating in London and elsewhere was an association of which 49 per cent of the shares belonged to the Metallgesellschaft of Frankfort, 27 per cent to Merton's in England and the remainder, 18 per cent, largely to Germano-American interests.

Duluth Confident of Great Business Era

DULUTH, Nov. 25.—Duluth business and financial interests are confident of an extended period of activity in manufacturing lines after peace is declared. It is assumed a start will be made without undue delay in the erection of four plants for finished steel products. These will entail an estimated capital outlay of $15,000,000, as provided for in the agreement entered into last month between Judge Elbert H. Gary, chairman of the United States Steel Corp. and a Duluth civic committee. It is contended that an incentive to proceed with the establishing of the plants will be furnished the corporation through the necessity of finding an outlet for the semifinished steel products of the Minnesota Steel Co.'s blast and open-hearth furnaces, that up to the present have been shipped under contracts for the manufacture of war munitions.

The establishing of a chemical plant to utilize the by-products of the coke ovens at the blast furnaces is among the suggestions now being made by members of the Duluth Commercial club, who are seeking to bring other industries to the city. It is argued that with two blast furnace plants in operation at Duluth, ample supplies of essentials will be available for chemical works.

Certain prominent eastern interests recently visited the district with a view to establishing an iron industry. It is understood that an option was obtained on a block of property at Superior and an announcement is looked for at any time.

Revive Tonnage Tax Plan

The iron ore tonnage tax is to be resurrected at the next session of the Minnesota state legislature, according to information received here. It is intimated that the plan can only be checked by definite assurances from members of the Lake Superior Iron Ore association that additional iron and steel plants will be established to counterbalance any financial advantages the state might derive through the enactment of a tonnage tax. The tax proposal was defeated after a hard fight when it came up in the state legislature a few years ago, and it is asserted that the steel interests are likely to be called on to reassert themselves to defeat it early next year.

One of the most satisfactory ore shipping seasons in the history of the ranges is drawing to a close. With a record of 56,870,871 tons in ore shipments for the Lake Superior district up to Nov. 1, predictions are being made that a mark of 62,000,000 tons will be set for the season. The tonnage might have been much larger had the movement not been checked by orders from the war industries board. Some of the independent operators sent down their full allotments of ore by the first week in November, and their energies have since been directed in development work and mine improvements.

Officials of the Oliver Mining Co. planned to send their last shipments of ore down to the docks by Nov. 23. The company's big ore concentrating plant at Coleraine, Minn., on the Mesaba range, was shut down Nov. 2 after producing 2,350,000 tons during the season. The company is planning considerable work during the winter and will employ about 12,000 men, according to J. H. McLean, general manager. Included in the company's program for the winter is the completion of a concentrator and crushing plant now being built near the Leonidas mine in the Eveleth district.

Continue Shipments

The Shenango Furnace Co. completed its shipments for the season Nov. 5, with a record of 750,000 tons. The greater number of its mining force will be employed during the winter. The Tod-Stambaugh interests are planning to make a total shipment of 2,550,000 tons for the season, an increase of 10 per cent over their 1917 shipment. Mine operators were favored with good weather up to the close of the shipping season.

Shipments of manganiferous ores from the Cuyuna range will be continued so long as weather conditions permit. New high records were attained during the season. Shipments are expected to aggregate 3,000,000 tons as compared with 2,422,844 tons during 1917. Shipments of manganiferous ores from that range are expected to reach 700,000 tons, or about double the 1917 total. As an active demand for those ores next season is regarded as assured exploratory and development work will be pushed during the winter. Four new Cuyuna range manganiferous ore properties are expected to enter the shipping list next spring.

Operators of underground mines on the Minnesota ranges have given notice that a readjustment of either ore prices or costs must be made before the opening of the 1919 season, or they will be driven out of business. From data furnished by the Lake Superior Iron Ore Shippers' association it is shown that in some instances underground mines on the Mesabi and Cuyuna ranges operated during the past season at losses extending to 50 cents a ton rather than fail in their contracts. Besides the advances in freight rates, mine wages increased 55 per cent between Dec. 15, 1916, and Aug. 1, 1918. In addition the basic 8-hour day, adopted in the Lake Superior district, entailed an increase of from 10 to 17 per cent in the cost of labor. Mining men consider they are justified in pressing their claims for consideration early in order that they may be in position to formulate their plans for future operations.

Health Insurance Plan as Aid to Labor

Prof. John R. Commons, a noted labor expert and head of the department of political economy, University of Wisconsin, in a recent address on "Health Insurance" before the annual convention of the Wisconsin Medical society, raised many points in favor of the institution of a system of protection for workers which are of particular interest to employers in the iron, steel and machinery industries. Prof. Commons said in part:

Health insurance is coming, as shown by the progress of group insurance and establishment funds. The question is, under what form shall it come and who shall control it. With the growth of establishment funds and group insurance employers will control the system, and the question for the public and the employe as well as the medical fraternity is whether this is better than a system of joint control where both employers and employes are represented, in which the medical associations will have a voice as an organized body and which the public will supervise through state agents.

The objection that this means increased paternalism is not sound for it is not proposed that the state shall pay the bills or manage the funds. All the state does is to lay down the rules as to the amount of compensation, medical service, adequate reserves, etc. The system is one of mutual insurance under public supervision.

In this system the medical association holds the balance of power and is the deciding factor. The physician decides all cases as a disinterested party with reference to disability through sickness and period of recovery. When these questions are decided the amount of compensation and premiums to be paid are automatically determined by rules previously laid down in the law.

The present tendency toward group insurance and establishment funds can never reach but a small proportion of the working population. The tendency will be to tie the worker to his job because by changing his employer he loses his insurance. The effect of this is to shift the cost upon the worker in lower wages or less rapid rise of wages, on account of loss of liberty.

The proposed health insurance plan cures both of these evils at one stroke. It makes the system universal for all employers and liberates the worker in choosing between employers.

British Demands Continue Strong

Approach of Peace Brings No Relaxation in Call for Raw Material—Buying in Finished Iron and Steel Market Quickened—Government Likely to Continue Control to Prevent Soaring of Prices

Bureau of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Nov. 7.

DEMAND for pig iron has not yet reflected the improvement in the military situation. While there is a little caution here and there, in the finished department, the sole concern of the buyers of raw material is to get all the pig iron they can. In the north of England which has been better supplied than other districts it is likely that a number of certificates will have to be cancelled at the end of the month through nondelivery. The export trade is improving considerably. There is more tonnage available and it has been found possible to send out better shipments to the allies.

Foundry iron is scarce and in all parts of the country the quality of the metal available is much below what is wanted. Forge quality is in fair supply and makers are inclined to press this metal on the market. The make of white and inferior iron continues disproportionate.

Smelter's continue to keep down their bookings, seldom accepting in the Midlands more than 100-ton lots. The approach of peace, brings no relaxation in the call for raw material and users will be pleased if peace finds them with a little reserve on hand. Railroad car shortage is adding to the customary difficulties. The furnaces are doing better in the matter of coal supply, since the coal controller exerted himself especially in their interest.

Wages Are Raised

The cost of production will be materially increased by a raise in wages, recently awarded by the ministry of munitions to the furnacemen. Overtime is to be paid at the rate of time and one-half, with double-time for Sunday work. This is an important change, the tradition being that furnace work is a seven-day operation, and Sunday has, therefore, been regarded as an ordinary day. The men's leaders contend that the earnings should in no case be below £3 ($14.40) per week.

An agitation has been started for a universal 8-hour day, one leader claiming that where men are in continuous employment, as in the furnace trade, they should not work more than six hours. The new advance is retroactive from Aug. 18. A clause which has aroused some resentment is the one providing that the men must work 48 hours a week before claiming overtime, the men contending that each day should stand by itself.

Smelters are not greatly concerning themselves about the increased cost of production, as the increase will have to be met by a larger government subsidy. Many employers would be glad to adopt the triple 8-hour shift, but the lack of workmen makes this impossible. It will however, probably, become general after the war in view of the desire for intensive production.

Finished Steel Active

Buying has quickened somewhat in the finished iron and steel market. The recent check was almost imperceptible, certain of the more cautious buyers showing a disposition to feel their way and "wait and see." But buyers now see less reason for getting nervous as to a slump in prices. The world is hungry for iron and steel. It is argued also, that probably the government will retain control of prices for some time after the war. Even if this does not occur many people believe that prices are more likely to rise than fall. They argue that only the tight hand of the government prevents prices soaring much higher than they are at present. The market value of iron now selling at £16 10s ($79.20), it is confidently asserted, would be at least £20 ($96).

Every day orders, even of high priority, have to be turned down. All sorts of inquiries are being put out to test the possibility of getting orders accepted. If a merchant accepts a 10-ton line he is immediately asked if he will make the order 20 tons; if he takes 20 tons, he is offered 40 tons, and so on. Warehousemen manage to keep fair stocks and make a moderately good total turnover.

The ministry of munitions has issued a revised list of prices as the accompanying table shows. Most of these figures were in the hands of makers and dealers a fortnight ago but there were some changes made later.

The government has been placing war orders plentifully. As far as general steel orders are concerned the position is in no way changed, but the makers of big shells are reported to be a little quieter, having stopped overtime work.

Gas stripmakers do not take kindly to the idea that they may have to go without the advance they have asked for in view of the slight check in the tone of the market caused by peace overtures. On this matter they are not sentimental, and, as they say, they are losing money at the present selling figure, they propose making a further application to the ministry of munitions next week for some special consideration.

All the ironworks and steelworks are suffering more or less in the Midlands through coal scarcity and frequently make short time. The coal controller reports a shortage of 15,000,000 tons during the first 36 weeks of the year, compared with the same period last year, and an appeal is being made for economy in all directions largely by more scientific and systematic use of fuel.

New Prices on British Iron and Steel

	Per ton
Steel—slabs, plates, strips and pieces cut from plates, suitable for re-rolling	$49.80
Steel plates, sheets and black plate, all open annealed produced in sheet mills. 10 tons and upwards of one size and thickness.	
Above 3/16 inch thick	79.20
3/16 inch and under to 16 gage inclusive	80.40
Under 16 gage to 20 gage	82.80
Under 20 gage to 24 gage	82.80
Under 24 gage to 26 gage	88.80

	Per ton Extra
Under 10 tons down to and including 2 tons of one size and one thickness	2.40
Under 2 tons down to and including 1 ton of one size and one thickness	3.60
Under 1 ton down to and including 5 cwt. of one size and one thickness	4.80
Under 500 pounds of one size	7.20

The maximum prices for defective steel plates, sheets and black plate above mentioned will be $4.80 per ton less than the above.

Extras for sizes, etc., as follows:

	Per ton
Over 4 ft. wide up to and including 5 ft.	2.40
Over 5 ft. wide up to and including 6 ft.	4.80
Re-shearing to exact sizes	2.40
Close annealing	3.60
Cold rolling	4.80
Hydraulic flattening	4.80
Mangling	2.40
Pickling	7.20
Special Welsh finish or equal, 16 gage and thinner	7.20
Under 250 square inches area	7.20
Painting one coat both sides ordinary paint—	
20 gage and thicker	9.60
21/24 gage inclusive	12.00
25 gage and thinner	16.80
Circled, carved, tapered and thin plates to sketch	to be subject to arrangement
Bundling	No extra

Extras for Lengths

Exceeding	Not exceeding	12 gage and thicker	13 gage to 16 gage inclusive	17 gage to 20 gage inclusive	21 gage to 24 gage inclusive
9 ft.	10 ft.	....	....	$1.20	$2.40
10 ft.	12 ft.	....	$1.20	2.40	4.80
12 ft.	14 ft.	....	2.40	3.60	8.40
14 ft.	16 ft.	.60	4.80	6.00	10.80
16 ft.	18 ft.	$1.20	$7.20	8.40	14.40
18 ft.	20 ft.	1.80	9.60	10.80	19.20
Corrugated sheets					No extra

These prices and extras are applicable to all orders for home trade and export. The above-mentioned maximum prices and extras do not apply to separate and independent orders involving the sale of less than two tons.

All the foregoing prices are not f.o.b. producers' works.

Adopt British Ship Steel Standards

American Steel Makers Take Measures for More Economical Production and Standardization Enabling Them to Compete With Foreign Manufacturers—Recommend Fleet Corporation Issue Order to Shipyards

BRITISH standards for ship steel were adopted by American steel manufacturers at a conference in Philadelphia, Nov. 19 and 20. It was decided that British standard sections of ship channels and shipbuilding bulb angles were better adapted to economical manufacture than the American standards. Inasmuch as the new rolls which had been turned in recent years to produce the sections conformed to British standards, the steelmakers declared that American standards should be discontinued and all rolls in hand not to British standards should be redressed to roll the sections as closely to British standards as slightly divergent methods of production would allow. It was held that the conformation of American ship steel standards to those adhered to by the British would enable American mills to compete on an even basis for ship steel wherever utilized, either at home or overseas.

The conference was held in the office of the Cambria Steel Co., with George E. Dix, assistant to the general manager of sales, presiding. Representatives were present from all the larger mills which manufacture structural steel shapes, including the Bethlehem Steel Co., Cambria Steel Co., Carnegie Steel Co., Eastern Steel Co., Illinois Steel Co., Inland Steel Co., Jones & Laughlin Steel Co., Lackawanna Steel Co., Phoenix Iron Co., and Tennessee Coal, Iron & Railroad Co.

As an evidence of the close relationship between the standardized manufacture of ship steel and the construction of ships with standard plates and angles, representatives of the Emergency Fleet corporation participated in the conference with the steelmakers. F. T. Llewellyn, in charge of steel standardization, engineering section, division of steel ship construction, and A. J. C. Robertson, chief designer, represented the corporation.

What Experience Showed

R. B. Woodworth, engineer with the Carnegie Steel Co., who was instrumental in the preparation of the original standard practice, presented detailed written proposals as a basis for discussion for the modification and standardization of ship channels and bulb angles and for the revision of the American Standard practice.

The standard practice eliminated minute variations in the thicknesses of plates ordered from the mills and simplified transmission of orders from the yards to the mills. It was stated that the situation as regards plates was greatly improved and led to some remarkable production records. At the time the standard practice was adopted it was recommended that the use of sections infrequently rolled be eliminated and that orders be confined so far as possible to American standard beam sections, structural channels and plain angles, except that ship channels and bulb angles might be rolled as required on shipbuilders' schedules. It was recognized that the ship channel and bulb angle were more suitable than other sections but their use was limited by lack of adequate facilities for their manufacture.

American steelmakers were said to have been convinced by the experience of 16 months that the structural channel was not an entirely satisfactory section for use in hull construction, owing to its narrow flanges and steep slope on the inner sides of the flanges. At the same time, experience showed that the bulb angle is a most desirable section for ship construction. The introduction of beams and structural channels into the list for ship steel had opened the way to the use of an enormous number of structural sections with relatively limited tonnages per section.

How Production is Retarded

The division of steel ship construction made an investigation to compile a selected list of sections for use in the construction of ships which would increase production. The investigation made by Mr. Llewellyn considered 1508 hulls of 10,302,150 deadweight tonnage requisitioned or under construction by the Emergency Fleet corporation, with a total shape weight of 1,100,651 net tons distributed among 131 different structural shapes in 403 sectional thicknesses. In the case of one design for a 5000-ton boat with but 1,026,966 pounds of structural shapes there were 42 different shapes and 118 separate thicknesses, of which nine sections were rolled only at one mill and one T section only at another mill. Of separate sections there were items as low as 8 pounds each and 35 sections less than 500 pounds each. Of one shape only 43 pounds were required. If such tonnage were the only available at the mills for this particular shape, it would require material for 4600 boats to accumulate before considerations of economical production would justify placement of rolls. Of another relatively heavy shape on the same basis, economical production would require tonnage for 1000 boats to accumulate.

The investigation indicated that while a number of steelmakers rolled bulb and angles and ship channels there had been no definite endeavor to standardize those sections, and Mr. Llewellyn recommended that the sections be adjusted to British standards, that steelmakers confer and agree to publish like ranges of weights and dimensions and that there be prepared for distribution to the yards a selected list of sections recommended as most suitable for ship construction.

The steelmakers after deciding to adopt the British standards further agreed that, in general, ship channel rolls would be dressed so as to produce the Lloyd minimum and maximum thicknesses with one thickness 0.05 of an inch less than the British standards, that mills publish but one intermediate thickness in the Lloyd range of ship channels, that in bulb angles where the Lloyd range seems to be too arbitrary and to provide an unnecessary number of thicknesses the Lloyd range should be aimed at only in the deeper sections, that there should be but one thickness below British standards and that intermediate thicknesses be published to vary by 0.05 of an inch; bulb angles to show exact leg dimensions at British standards and at 0.10 of an inch intervals above.

It was then recommended to the Emergency Fleet corporation that a technical order be issued to all shipyards to put the standardization into effect and that so far as possible orders for structural sections to be used in ship construction be governed by the recommended list of sections as follows, the dimensions being in inches, and the bulb angle weights being approximate:

EQUAL LEG ANGLES

Size	Thickness	Weight per foot
6 x 6	.750	28.7
	.6875	26.5
	.625	24.2
	.5625	21.9
	.500	19.6
	.4375	17.2
	.375	14.9
5 x 5	.750	23.6
	.6875	21.8
	.625	20.0
	.5625	18.1
	.500	16.2
	.4375	14.3
	.375	12.3
4 x 4	.750	18.5
	.6875	17.1
	.625	15.7
	.5625	14.3
	.500	12.8
	.4375	11.3
	.375	9.8
Size	**Thickness**	**Weight per foot**
3½ x 3½	.625	13.6
	.5625	12.4
	.500	11.1
	.4375	9.8
	.375	8.5
	.3125	7.2
	.250	5.8
3 x 3	.500	9.4
	.4375	8.3
	.375	7.2
	.3125	6.1
	.250	4.9
2½ x 2½	.375	5.9
	.3125	5.0
	.250	4.1

2 x 2	.250	3.19
	.1875	2.44

UNEQUAL LEG ANGLES

Size	Thickness	Weight per foot
6 x 3½	.750	22.4
	.6875	20.6
	.625	18.9
	.5625	17.1
	.500	15.3
	.4375	13.5
	.375	11.7
5 x 3	.500	12.8
	.4375	11.3
	.375	9.8
	.3125	8.2
Size	Thickness	Weight per foot
4 x 3	.500	11.1
	.4375	9.8
	.375	8.5
	.3125	7.2
3½ x 3	.500	10.2
	.4375	9.1
	.375	7.9
	.3125	6.6
	.250	5.4
3 x 2½	.375	6.6
	.3125	5.6
	.250	4.5

BULB ANGLES

Size	Thickness of Longer Leg	Weight per foot
10 x 3½	.725	35.2
	.675	33.2
	.625	31.1
	.575	29.1
	.525	26.9
	.475	24.9
9 x 3½	.625	28.6
	.575	26.6
	.525	24.8
	.475	22.7
	.425	20.9
Size	Thickness of Longer Leg	Weight per foot
8 x 3½	.550	23.2
	.500	21.6
	.450	19.6
	.400	18.0
7 x 3½	.525	20.0
	.475	18.6
	.425	16.8
	.375	15.3
6 x 3	.475	15.6
	.425	14.1
	.375	12.8
	.350	12.2

SHIP CHANNELS

Size	Thickness	Weight per foot
12 x 3½	.700	40.8
	.600	36.8
	.500	32.7
	.450	30.6
10 x 3½	.675	34.8
	.575	31.4
	.475	28.0
	.425	26.3
	.375	24.6
9 x 3½	.650	31.3
	.550	28.3
	.450	25.2
	.400	23.7
Size	Thickness	Weight per foot
8 x 3½	.525	25.3
	.425	22.6
	.375	21.2
7 x 3½	.500	22.5
	.400	20.1
	.350	18.9
6 x 3½	.475	19.8
	.375	17.8
	.325	16.8
6 x 3½	.350	15.2

TEES

6½ x 6½	.450	19.8

HATCH ZEE (Tyzack)

2½	.500	13.6

15-INCH STRUCTURAL CHANNELS

Thickness	Weight per foot
.818	55
.720	50
.622	45
Thickness	Weight per foot
.524	40
.426	35
.400	33

27 shapes—115 sections

Sections not shown in the above list may be included on the shipbuilders' schedules with the proviso that they be specified only when they can be ordered in lots of not less than 40,000 lineal feet per shape at one time or by special arrangement with the mills. The steelmakers suggested that orders for such shapes should not be divided among mills but the entire quantity of each shape should be placed at one mill with the express stipulation that the mill may at its option roll, ship and invoice all the tonnage at one time, regardless of position in shipyards and fabrication schedules. The American list provides a larger number of shapes with fewer thicknesses than the British list.

Annual Meeting

Of Mechanical Engineers to be Held in New York, Dec. 3 to 6

Adherence to the practice of previous years of having a topic of broad, general interest for the leading session, will mark the thirty-ninth annual meeting of the American Society of Mechanical Engineers, to be held in the Engineering Societies building, New York, Dec. 3 to 6. One day has been set aside for the discussion of subjects relating to "Human Relations in Engineering and Industry." An elaborate program has been completed, and it is expected many more papers will be added to the list before the sessions open. Papers have been contributed by the committees on textiles, industrial buildings, machine shop practice and gas power. There will be a joint session with the American Society of Refrigerating Engineers, and at least two sessions for the presentation of miscellaneous technical papers.

The meeting opens Tuesday evening, Dec. 3, with the report of the election and the induction of the president-elect. This will be followed by an address by the president and a reception to the members. Business meetings are to be held Wednesday morning and reports of standing committees to be read. These reports include that of the committee on the standardization of flanges and pipe fittings.

The joint session of the two societies marks Wednesday afternoon's session. The machine shop session also is scheduled, at which a number of papers are to be read. Among them are, "Measurement of Thread Gages," by H. L. Van Keuren; "Standards for Large Taper Shanks and Sockets," by Luther D. Burlington. Reports on the work of the British Engineering Standards association are also to be read and the bureau of standards has arranged for an exhibit of the measuring apparatus and methods of the bureau in testing screw-thread gages. Several good papers are to be read at the general session, which concludes the afternoon's work. At this session, Frederick A. Halsey will read a paper on "Weights and Measures of Latin America."

Papers to be read at the Thursday morning session discuss organization, standardization and administration of wages, nonfinancial incentives, incentive of control in industry, employment of labor, dilution of labor, intensive training and human relations in industry.

The technical side of the war is to be shown in motion pictures at the Thursday evening session. This is to be followed by a dance. At the Friday morning session, papers of general interest are to be read. At the power plant session the following papers will be presented: "The Conservation of Heat Losses from Pipes and Boilers," by Glen D. Bagley; "Chemical and Physical Control of Boiler Operation and Application of Simple Formula for Estimating the Heat-Loss Items," by E. A. Euhling.

At the general session, "The Relative Corosion of Alloys," will be read by R. B. Fehr; "The Relative Merits of Cast Iron, Wrought Iron and Steel Pipe for Drainage Purposes," by William P. Gerhard; "The Design and Maintenance in Operation of Hydraulic Valves and Fittings," by William W. Gaylord, and "The Mechanical Features of the Vertical-Lift Bridge," by Horatio P. Van Cleve.

This meeting is expected to be one of the best in the history of the association and efforts are being made by the committee to obtain papers of general interest to all those who attend. Many papers are now being registered and they will be announced later.

Foundrymen Meet Again

The October meeting of the Pittsburgh Foundrymen's association, postponed because of the influenza epidemic, was held Nov. 18. The chief speaker was John T. Loeber, who recently returned from service at the front with the Y. M. C. A. Three weeks ago Mr. Loeber was in the Argonne forest with the American forces. Maj. Edward T. Walsh, ordnance officer of the Bridgeport, Conn., district, who was to have been the principal speaker, could not attend. At this gathering the association voted to issue a quarterly report hereafter, in which all papers read before the organization would be reprinted in full. Favorable action was likewise taken on the printing of a list of members in an early report, giving their complete addresses. President J. Lloyd Uhler announced that George F. Tegan, Pittsburgh representative of THE IRON TRADE REVIEW and other Penton Publishing Co. publications, had been appointed a member of the organization's program committee.

The Chicago Vitreous Enameling Products Co., 1423 South Fifty-fifth court, Cicero, Ill., has increased its capitalization from $51,000 to $61,000.

Peace Brings Flood of New Work to West

(Special Correspondence).

SAN FRANCISCO, Nov. 21.—Buildings to cost between $40,000,000 and $50,000,000 are planned for construction in San Francisco just as soon as conditions become more stable and materials are available. These figures represent the combined estimates of San Francisco architects and represent many kinds of building. The estimate does not include the $2,000,000 which the state board of harbor commissioners proposes to spend in improving the San Francisco waterfront, nor does it include the development of the Hetch-Hetchy hydro-electric project by the municipality, for which there are $17,000,000 worth of bonds available.

One architect has plans for about $11,000,000 worth of buildings, construction of which was postponed by the war, awaiting orders from the property owners. The city expects to start a large school building program soon for which there is $3,500,000 available in bonds. In addition, the application of the municipality for permission to carry on the Hetch-Hetchy project has received the approval of the war industries board.

A committee of business men will act in an advisory capacity with the state board, particularly in matters relating to foreign trade, when the program for improving the waterfront is developed. The plan includes: The equipment of piers with modern labor-saving devices; extension of existing piers to the pierhead line; reconstruction of pier No. 1 for bay and river commerce; concentration of coastwise shipping at specified piers with accommodations for passengers; extension of oil terminal facilities at Islais creek; new docks and warehouses at Islais creek, especially fitted for overseas business; warehouses on seawall lots and on bulkheads between existing piers. Port charges are to be made as favorable to shipping interests as at any port on the Pacific coast, and railroads are to be urged to absorb charges on through freight to as great an extent as is done at other ports.

So far as foreign commerce is concerned, the port of San Francisco is to be opened to the maritime world on a free-ship basis on Jan. 1. The berthing charges now made against such ships are to be put on the cargoes. The cargo tolls of 5 cents a ton will be raised to 15 cents a ton. This rule of the harbor commissioners is to be made effective Jan. 1, regardless of any action which may be taken by the convention of Pacific coast port authorities here early in December. This convention will endeavor to establish uniform port charges and customs at all of the Pacific coast ports. The change in the method of handling port revenues is revolutionary. It was made upon the recommendation of a committee of shipping men, exporters and importers, but does not affect coastwise, bay or river commerce.

Under the old system of assessing the port charges against the vessel and not the cargo peculiar conditions arose. There is at least one case on record where the consignees failed to remove a cargo from the docks and the vessel returned from a trans-pacific voyage to find a remarkable amount charged against it for storage of the discharged cargo.

Regulations governing construction have been amended by the state council of defense. The bars are let down for all construction of rail and water transportation and communication utilities of whatever nature, all public utilities, water and sewer systems, light and power facilities and street and interurban railways. All classes of mines, oil and gas concerns are relieved from restrictions, together with other classifications not of great interest to the iron and steel industry

Labor Conditions Unsettled

As a result of the award of the Macy board, recently announced, labor conditions on the coast are extremely unsettled. The Iron Trades council, an employes organization, has asked to meet representatives of the California Metal Trades association and the California Foundrymen's association to discuss wage increases and the notification of the employers not doing contract work for the government that they will not recognize the wage award made by the Macy board.

The proprietors of private shops contend that the award granting a 10 per cent increase in wages retroactive to Aug. 1, 1918, is effective only in shipyards and plants engaged in government contract work. The conference is to determine the wage conditions that shall apply in private shops. The employes' organization has notified the employers that they expect the conditions of the Macy award to be accepted by employers in private work. The employers maintain that acceptance of the Macy decree will put many of them out of business.

Both employes and employers have protested the Macy award so that there is little doubt but that the board of review and appeals will be called upon for a decision. Following the convention of labor men in Seattle, Dec. 8 was set as the date on which a decision would be announced. In the event of a strike, 16 shipyards on the Pacific coast would be closed, divided as follows: San Francisco, Oakland and Alameda, four; Seattle, four; Portland, three; Los Angeles, two; Vancouver, Wash., one; Tacoma, one; Everett, one.

In the meanwhile, William T. Boyce, district superintendent of the United States employment bureau, states that there will be no cessation in the war-labor recruiting program of the department. Preparations are being made, he states, to provide work for soldiers, sailors and marines as soon as demobilization begins.

A comparative table giving tonnages of iron and steel products exported from San Francisco in September and August, 1918, follows:

	SEPTEMBER TONS	AUGUST TONS
Structural iron and steel	359	422
Wire, barbed	31	188
Wire, other	601	1299
Wire nails	828	1438
Nails, cut	19	2
Wood screws	6½	13½
Nails, other	620	261
Pipe, cast	408	623
Pipe, wrought	1135	1929½
Railroad spikes	114½	92
Steel rails	319	1698
Galvanized iron and steel sheets	1173	1357
Iron sheets and plates	780	416
Steel plates	7257	2100
Steel sheets	737	692
Steel bars	3250	5044
Steel wire rods	612	61
Steel ingots	3	....
Bar iron	717	699
Pig iron	469	....
Bolts and nuts	628	459

To Probe Work of Fleet Corporation

Senate Resolution Calls for Complete Reports on Delivered Tonnage, Contracts Now Existing, With Cancellation Provision and Future Plans—Wooden Ship Program, Called Failure by Various Builders, to be Investigated

WASHINGTON, Nov. 26.—Replying to the resolution introduced in the senate last week by Senator Harding, of Ohio, calling for an investigation of the work of the Emergency Fleet corporation, Charles Piez, vice president of the corporation, said that the shipping board is imposing such restrictions on shipbuilders and making such cancellations of contracts as will bring the shipbuilding industry back to a normal basis. Mr. Piez said the board early in September decided to change its program to bring about a considerable reduction in expenditures. The board's purpose now, he pointed out, is to produce ships with regard to economy in construction rather than speed in delivery. The resolution of Senator Harding called for a statement of ships built and their cost and Mr. Piez said that a full report in answer to the resolution is being prepared and soon will be submitted to the senate. Especial attention is to be given to the wooden ship program, which is declared to have been almost a complete failure. Scrutiny also will be made respecting the cost of maintenance of the big program outlined by Chairman Hurley and colleagues of the shipping board in connection with the proposed merchant marine. The investigation is to be conducted by the committee on commerce.

The Harding resolution in detail calls for a report on all existing contracts for ship construction, the cost of such construction in both private and government shipyards, the provisions for the cancellation of contracts made for emergency war needs, together with a report of ships delivered and the disposition made of them, ships in process of construction, and a report on contracts and deliveries of materials for fabricated ships.

The resolution also asks for information as to the number of ships launched, the number delivered, the number in service, and the terms thereof including the kind of ship in each instance; and if there has been any delay between launching and the service, the reason thereof with number and kind of ships involved and what has been done and when regarding provision for housing for shipworkers under the act passed with relation to this question.

In explaining the resolution, Senator Harding said it was inspired by the publication of utterances of the chairman of the shipping board and the director general of the fleet corporation that there are places in the shipyards now for 200,000 men additional to the present force. It requires but little figuring, said Senator Harding, to present the fact that that means an additional expenditure over our present outlay of more than $600,000,000 a year for labor alone in these shipyards.

Senator Calder, of New York, said that of the 800 ships in the wooden ship program, which was urged so vigorously by former Chairman Denman of the shipping board, reliable information showed that only 90 ships were finally turned over as completed and that of these 90 not more than 30 have carried a cargo. Of the 30, he said, not one has gone overseas. Expert shipping men, according to Senator Calder, said it would be impossible to expect these wooden ships to make the overseas trip. Furthermore, Senator Calder said he had been informed that of the 90 wooden ships the first two allocated to a shipper on the coast sank, one going down before it got to its pier and the other sinking on its way up on a trip. Senator Calder added that he understood that expert shipbuilders are urging that contracts for all of the wooden ships be cancelled, as they are convinced that the wooden ship is a failure. Contracts for some were said to already have been cancelled.

Government May Aid Recovery of Potash

WASHINGTON, Nov. 26.—Now that more attention can be given to the subject, increased interest is being shown in the potash situation and the matter of recovering this product extensively from dust from blast furnaces. It has been indicated that serious consideration is being given to a suggestion that a special potash commission be appointed by the President to consider the question as a separate item from those mentioned in the war minerals act.

The suggestion of such a commission was made in a letter regarding the possibilities of getting potash from blast furnaces, which was written to Franklin K. Lane by Linn Bradley, chief engineer of the Research Corp., 63 Wall street, New York, last September at the request of Mr. Lane. Mr. Bradley expressed the opinion that perhaps a special bill, somewhat along the lines of the emergency power act, would be advisable. He pointed out that the government controls the nitrates and that this country has the world's supply of phosphates. Surely the government should at once take control of potash, he said, pointing out that the greatest diplomatic weapon in control of the Germans is potash.

In order that the Cottrell process might be applied to the best advantage in the recovery of potash as a by-product, Mr. Bradley went fully into the subject of potash content of the raw materials employed in the cement and iron industries. He reported that he found that the cement industry can be made to yield approximately 100,000 tons of potash as a by-product, while the iron industry has even larger potentialities.

South's Ores Rich in Potash

An investigation of iron ores and furnace materials in general in collaboration with Dr. J. S. Grasty, Charlottesville, Va., resulted in Mr. Bradley reaching the conclusion that the best iron ores for this purpose are to be found in the south. These are known as the Cambrian hematites of eastern Alabama, which occur principally in Talladega and Shelby counties. These ores are declared to range in potash content from 1 to 3 per cent and will average approximately 2 per cent, which is about six to nine times the content of most of the other ores employed in the manufacture of pig iron. Furthermore, it is said, these ores occur in immense tonnage. From other sources, however, it has been stated that it has not been found profitable to smelt these ores to make iron, and therefore it would not be practicable to attempt to recover potash from them.

Mr. Bradley pointed out that a large blast furnace, smelting these ores, would yield annually about 5000 to 7000 tons of potash as a by-product, worth at present prices approximately $3,000,000. Such a figure as this, said Mr. Bradley, is startling at first consideration, but the scarcity of potash is such that present prices are about eight times the prewar prices. Smaller furnaces, it was stated, should yield a proportionate amount of potash. Continuing, Mr. Bradley wrote:

"This country's iron producing capacity is such that if these Cambrian ores could be supplied in adequate tonnage to existing furnaces, approximately 1,500,000 tons of potash could be produced annually as a by-product, at a price which not only could compete with Germany but would allow us to export potash as her competitor. But there is a limit to the possible development, transportation and use of these ores. These ores should be able to furnish enough potash for the south's requirements for the next 50 years. These ores are higher in iron content than those which are being generally used in the south at present and their record in the furnace

is excellent as to costs, quality, etc. These ores would be fed into existing iron blast furnaces, the potash being collected from the gases while en route to the hot blast stoves. Thus both pig iron and potash would be made by existing equipment and have the benefit of a single operating cost which is now borne entirely by the pig iron. It is obvious that this method will produce the largest tonnage of potash per unit of new material and labor, and thus comply most suitably with other war needs. As the gases should be cleaned in any event, the recovery of the by-product potash is a distinct net gain. It can be obtained at a cost low enough to meet any competition and it represents a distinctly American method of obtaining valuable materials from what formerly was waste.

Advises Government Control

"These figures and this situation look exceedingly attractive, except when viewed in the light of a new enterprise facing an 80 per cent tax on its profits and the uncertainties as to labor, machinery, materials, fuel, transportation and the ordinary hazards of a pioneer enterprise. It therefore seems essential for the government to take control of the entire proposition seeing to it that the ores are mined on a large scale, that iron furnace owners used such ores and install potash recovery plants. The government alone can exercise the power necessary to insure labor, material, fuel, transportation and the like. Thus will potash be developed in adequate tonnage and at a low cost.

"In some cases Georgia slates, which carry from 7 to 10 per cent potassium oxide can be employed as part of a blast furnace burden or as part of the raw material for cement production in existing furnaces or kilns and thus increase the potash output. These slates are nearly unlimited and are very well adapted for use in cement manufacture.

"The Alabama ore occurrences which I am bringing to your attention are not mere prospects, but have been fully opened up and have been systematically mined. Their content of metallic iron will range from 40 to 50 per cent, the high potash content going with the lower metallic content. Furthermore these ores are reached by the Louisville & Nashville and Southern railways, which extend to practically all the important blast furnaces of Alabama. Freight rates range from 25 to 50 cents per ton. The cost of mining will range from $1.50 to $2 per ton under present conditions.

"Provided the mines be operated on a sufficiently large scale, the cost of production may then be somewhat less than the figures above mentioned. Since the potash content will average about 2 per cent and an 80 per cent recovery may be relied upon, they are worth, on account of their potash content alone, about $8 per ton, and so could be mined, and if necessary given away, provided suitable arrangements were made on the part of those producing the ores to get their remuneration from the potash recovered from them. This would hold, of course, only for the present scale of potash prices.

"In order to have all the element in hand to make this enterprise a success, I have conferred with those controlling the different properties and am assured of their hearty cooperation with the government on any basis of a reasonable nature that might be worked out."

Ordnance Department in Transitional Steps

Washington, Nov. 26.—Permanent organization for the commissioned and enlisted personnel of the United States ordnance department is now occupying the attention of a board just named by Maj. Gen. C. C. Williams, chief of ordnance, war department. This board, which will work in cooperation with a similar body just named by General Williams to consider the subject of arsenal facilities required for work of manufacture and repair hereafter to be performed by the ordnance department, is composed of Gen. George W. Burr, Col. W. W. Gibson, Col. Earl McFarland and Col. J. L. Walsh, with Maj. A. W. Borden as recorder.

In naming the permanent organization board General Williams particularly invited the members' attention to the desirability for the organization of a large ordnance field force which will be required for the maintenance of the reserves of artillery material on hand after the war, a part of which may be used for the instruction of line troops. The organization of training facilities needed for the ordnance department at its various plants and establishments for the development of the technical personnel will also be considered.

General Williams has also appointed boards to consider the discharge of temporarily commissioned officers of the ordnance department, for the examination of military records of ordnance officers, for demobilization and for salvage.

John D. Ryan Resigns as Chief of Aircraft

Washington, Nov. 26.—John D. Ryan, second assistant secretary of war and director of the air service, has resigned from his war duties to return to the copper industry. William C. Potter, his chief assistant, has also resigned and will return to the American Smelting & Refining Co., of which he is general manager. At Mr. Baker's request both have agreed to remain at their posts until the rush of aircraft demobilization is over.

After the retirement of Mr. Ryan and Mr. Potter the offices they now hold will not be filled immediately, if at all. Mr. Ryan, who will return to the Anaconda Copper Co., said in his letter of resignation:

"Labor and industry of the country must be quickly adjusted from a war to a peace basis, and copper production is one of the most vital to the country's welfare. I believe I can do more in helping to bring about stable conditions and that I should take up the work immediately."

Chain Ban Relaxed

Washington, Nov. 26.—Restriction on the production of trace and harness chains, porch swing chains and chandelier chain have been removed to the extent of 50 per cent of such restriction. A recommendation that this be done, made by the war service committees of the chain manufacturers' association has been approved by Judge E. B. Parker, priorities commissioner, effective Nov. 19. No change is made in the elimination of sizes and standards.

Director Leaves Council of National Defense

Washington, Nov. 26.—The council of national defense has announced that Walter S. Gifford, director of the council of national defense and of its advisory commission, has resigned to return to the American Telephone & Telegraph Co. as comptroller of that organization, his services having been loaned to the government throughout the war period. Grosvenor B. Clarkson, secretary of the council and of the advisory commission is acting director of both bodies.

The council of national defense now consists of the field division which guides and co-ordinates the activities of the 48 state councils of defense, the council of defense system now comprehending 184,000 units throughout the state, county, municipal and community defense organizations; the highways transport committee, which has an extensive regional organization; the medical section and general medical board, with 30 subcommittees; the committee on labor, headed by Samuel Gompers; the committee on engineering and education; the national research council, acting as the department of science and research of the council of national defense; the women's committee, of which the chairman is Dr. Anna Howard Shaw; and the naval consulting board, acting as the council's bureau of inventions. The council has also for some time been making a survey and intensive study of the work being done by the federal and civil agencies with regard to post-war problems.

Ask Continued Control

Washington, Nov. 26.—Manufacturers of sulphuric acid, at a meeting here last week, passed resolutions asking the war industries board to continue control of the industry, at least through price regulation, until April 1, 1919. Some manufacturers individually expressed the desire that the control be extended even further. The surplus of sulphuric acid in the hands of manufacturers in this country, counting in that being produced by the plants owned or controlled by the government, will amount to 600,000 tons, the manufacturers said. Because of this, it was said immediate release from federal regulation would be injurious to the industry.

Along with control of sulphuric acid also is sought continued regulation of the production of picric acid. This question will be thoroughly and formally discussed at the acid price-fixing meeting scheduled for Dec. 12. The meeting of the manufacturers last wek was attended by army, navy and tariff commission officials.

War Labor Board to Stay in Power

Cabinet Said to Have Decided That Board's Services Are Required During Transition Period—Cities Urged to Get Public Work Under Way as Soon as Possible

WASHINGTON, Nov. 26.—Realizing the importance of maintaining co-operation between capital and labor during the transition period, the government has concluded that the national war labor board is necessary as a government agency. Because of the large number of outstanding contracts which will necessitate the existence of an agency of such a character to adjust differences between capital and labor during the reconstruction period the national war labor board will not be abolished.

The future of the board was discussed at a recent cabinet meeting and it was agreed that the board's services would be required at this time when labor disputes would retard important construction delayed by the war. It is understood, however, that the board may not continue in its present form nor with its present membership.

The opinion of Secretary of Labor Wilson on the abolishment of the national war labor board is that the board should go on with its work until peace is declared. He makes this clear in a letter to William H. Taft and Frank P. Walsh, joint chairmen of the board, whose expressed belief is that the secretary of labor should immediately lay before the President plans for its abolishment. Secretary Wilson wrote:

"While an armistice has been declared, we have not yet reached the status of peace. That will not be reached until the President's proclamation has been issued after the peace treaties have been signed and approved by the senate. In the meantime, many problems of production and readjustment will have be dealt with. For these reasons it is desired that the national war labor board continue its activities."

The war labor policies board, surveying the public work postponed on account of war conditions, urges upon the principal cities of the country the necessity of getting under way with it to help stabilize employment and industry. Data concerning the portion of work well under way during the transition period from war to peace are being collected by the war labor policies board through the United States employment service and will be followed by further inquiries from it and the capital issues committee, which evidently is ascertaining the amount of bonds that have been and will be issued to carry on the work. The transfer of employment from a war to a peace basis is the full object of the undertaking. The following letter has been mailed to the mayors and chief executives of the principal cities of the United States by the board:

"The amount of public works postponed on account of war conditions is very large. If a considerable portion of these delayed public works are well under way during the transition period from war to peace, they will greatly help in stabilizing employment a l industry. The return of war workers into the essential industries of peace and the demobilization of our military forces can both be made more easily if the necessary public works of the municipalities of the United States are in full swing at that time.

"Therefore, the war labor policies board suggests that your city immediately determine how much of its delayed public works it can and will undertake, and when the different portions of it will begin.

"As soon as your preliminary plans are agreed upon, the nearest office of the United States employment service will be anxious to receive approximate information concerning the number and kinds of workers needed for carrying out your plans. The aggregate of such information from all the municipalities of the United States will be of great value to the government. After you have had time to make your decisions and plans, further inquiries through the capital issues committee and the department of labor will be directed to you concerning them."

Will Direct Redistribution

Community labor boards of the United States employment service, through which workers in nonwar work have been recruited for war industry, will now be utilized in the replacement in industry of both soldiers and civilian war workers. Information in industrial localities will be gathered by the boards. This information, through a plan formulated by the war department and the war industries board, will be sent in the form of weekly reports to the latter, thereby insuring an intelligent demobilization of the army and war industry and the successful redistribution of workers.

An appeal has been sent to each of the 1500 community labor boards by Secretary of Labor Wilson, urging their members to stay by their posts "until the last unit of our fighting forces overseas shall have been brought back to appropriate pursuits of peace and the last man to be withdrawn from the war service shall have been given an opportunity of employment for which he is best fitted to serve."

"There is no instrumentality at the government's disposal," the secretary's appeal continues, "so well equipped to help in the process of transition from war to peace as the community labor boards, and at no time since the beginning of the war has the need of such services been so urgent or the duties imposed upon these capable of performing them so imperative."

The country, the secretary adds, now faces the obligation to return to suitable employment those whom, under the stress of war, it has induced to enter its services in the field or in the factory. The demands upon the country since the signing of the armistice, he states, are perhaps greater than those during the war and the community labor boards will be looked to largely for the successful handling of the new problems.

The United States employment service before shifting munition and other war workers from such work will be consulted by the war department and the war industries board. The war department and the war industries board will also delay all action on war contracts.

By arrangement now effective, the war department, through the external relations branch of the division of purchase, storage and traffic of the general staff, for suspension, curtailment or extension of contracts will hereafter submit its proposals to a representative of the United States employment service and a representative of the facilities division of the war industries board. The chiefs of the commodities sections of the war industries board will be taken into consultation in the draft of proposals covering commodities, through the respective sections concerned.

The facilities of the United States employment service for replacing large bodies of men released from war work have been indicated by the placing of thousands of men from curtailed war operations in new jobs. The service is now engaged in rapidly expanding its system of clearance to meet the readjustment task.

An appeal to sub-contractors on war work and peace work employers to immediately notify the employment service of coming labor releases or needs has been issued by Nathan A. Smyth, associate director general of the employment service. The appeal reads:

"The arrangement with the war department and the war industries board enables the United States employment service to know in advance of and to prepare for releases of men by war industries holding direct contracts.

"Sub-contractors are urged to notify the employment service of coming releases, as far in advance as possible, in order that their employes may be placed elsewhere.

"It is particularly necessary that the United States employment service be advised of all openings for workers; and nonwar manufacturers who in their present and future operations need labor are requested to get into touch with the service.

"Only through having advance information of the easing off of war industrial operations can the employment service adequately devote its facilities toward relocation of war workers.

Obituaries

DR. CHARLES RICHARD VAN HISE, president of the University of Wisconsin since 1903 and one of the nation's most eminent geologists and mineralogists, died Nov. 20, of meningitis, following a nasal operation at Mt. Sinai hospital, Milwaukee. He was born at Fulton, Wis., in 1857, entered the university in 1875 and was graduated with the degree of bachelor of mechanical engineering, in 1879. Ever since 1879, he had been a member of the university's faculty, holding various professorships. From 1892 until 1903, he was its professor of geology at the University of Wisconsin and nonresident professor of structural geology at the University of Chicago. Although prominent as an educator, it was as a geologist that Dr. Van Hise was best known to the industrial world. To his explorations are given credit, as much as any other one factor for the phenomenal development of the upper peninsula of Michigan iron ore fields. He had explored fields also in many parts of the world. The government asked his aid in finding a solution of the slides in the Culebra cut at the Panama canal. His findings that these slides would diminish and eventually would cease so far have been borne out. The government turned to him again in 1917 as an expert for the food administration and he was consulted by other war bodies. He was likewise well known for his many books, treatises and public addresses.

James W. Graham, president of the C. A. S. Products Co., Columbus, died Nov. 5, after a brief illness.

M. L. Corey, secretary of the National Hardware association for 18 years, died Nov. 11, at Argos, Ind., aged 65 years.

Richard W. Myers, manager of the trade department of the Aluminum Cooking Utensil Co., died at his home in New Kensington, Pa., Nov. 7.

E. K. Foltz, assistant to L. H. Miller structural sales engineer for the Bethlehem Steel Co., Cleveland, died Nov. 9, after a brief illness of pneumonia.

Harry H. Spohn, purchasing agent of the Power Piping Co., Pittsburgh, died at the Mercy hospital, Pittsburgh, Nov. 11. Mr. Spohn was born in Crafton, Pa., 30 years ago.

Arthur H. Swett, president of the Swett & Sibley Co., Boston, manufacturers of wire grill work, died at his home in Winchester, Mass., Nov. 10, age 43 years.

Clyde D. Morris, superintendent of the Oak street plant, Lloyd-Booth department, Youngstown, O., of the United Engineering & Foundry Co., Pittsburgh, died Nov. 13.

Duncan McBain, aged 45, of the Foundry Equipment Co., Cleveland, died in a Flint, Mich., hospital, Nov. 15, from injuries sustained while making an installation.

Frank Stahl, for nearly 50 years vice president of the Peter Gerlach Co., Cleveland, died recently. Mr. Stahl, who was 71, was an authority on machine tools.

P. F. O'Rourke, a salesman connected with the New York office of the Norton Co., Worcester, Mass., died in St. Michael's hospital, Newark, N. J., of pneumonia, Nov. 10, age 40 years.

Frank Winfield Hubby Sr., retired manufacturer of Cleveland, died of heart disease in the Roosevelt hospital, New York City, recently at the age of 77. Mr. Hubby formerly was president of the Powell Tool Co., New York.

Edwin B. Bartlett, Boston manager of the Ludlum Steel Co., Albany, N. Y., died at his summer home in West Manchester, Mass., Nov. 5. He was a graduate of Harvard, class of '93.

Edwin L. Wade, 26 years old, traffic manager for the Carnegie Coal Co., died at his home in Midway, Pa., Nov. 21, following a brief illness from complications following an attack of influenza.

John E. Jones, aged 71, one of the pioneer steel men of the Newburg iron and steel district, Cleveland, died at the home of his daughter in that city. His father, Thomas D. Jones, founded one of the first steel mills in the Newburg district.

Louis Lyman LaClair, 36, superintendent of the Martin plant of the McKeefrey Coal Co., Uniontown, Pa., died Nov. 10, at his home at Martin, Pa., following a week's illness of pneumonia. He had been connected with the McKeefrey Coal Co. since 1905.

Capt. Howard C. Braddock, aged 29, a nephew of H. C. Frick, and who before entering the military service, was associated with his father in the coal business in Pittsburgh, was killed in action Oct. 24, according to a telegram received from the war department on Nov. 21.

Albert B. R. Prouty, an electrical engineer for the Western Electric Co., New York, when he joined the navy in April, died of bronchial pneumonia on the United States steamship NEW YORK, in foreign waters, Nov. 10, aged 26 years. He had the rank of lieutenant.

James B. Hammond, at one time connected with the Kentucky Southern Refractories Co., Bolivar, Pa., and a former member of the Pennsylvania legislature from Westmoreland county, died at his home in Rome, Ga., Nov. 9. He was 52 years old and was born in Bolivar, Pa.

Henry T. Richardson, president of Richardson-Boynton & Co., Dover, N. J., manufacturers of stoves, furnaces and ranges, died Nov. 17. The company of which he was president was established in 1882. Mr. Richardson was born in 1846 and made his home in New York.

John E. Schenck, superintendent of manufactures of the American Can Co., 120 Broadway, New York, died of pneumonia, Nov. 13, in his suite at the Hotel Marseilles, in that city. Mr. Schenck was born in Bridgeton, N. J., 55 years ago. He had been connected with the American Can Co. for eight years.

Charles W. Marsh, DeKalb, Ill., inventor of the Marsh harvester, a contemporary of Cyrus H. McCormick, William Deering, Lewis Steward and Ralph Emerson, pioneers of the agricultural implement business, is dead at his home, aged 84 years. He was born near Consecon, Can., and removed to DeKalb in 1849.

George Herbert Walsh, aged 35, who for 12 years was connected with the sales department of the Alan Wood Iron & Steel Co., Philadelphia, died of pneumonia at the Naval hospital, Queenstown, Ireland, Oct. 18, while engaged in Y. M. C. A. war work. His body was brought to Philadelphia and there buried.

Lieut. James G. Nixon, aged 26, who before he entered the second officers' training school at Ft. Benjamin Harrison, Indianapolis, was a salesman in the Cleveland office of the Manning, Maxwell & Moore Co., dealers in cranes, machine tools, etc., died on Sept. 12 in France of wounds received in action that day. He sailed last July for overseas duty with the 353d infantry. Mr. Nixon was very successful as a salesman.

W. W. Patterson, aged 43, superintendent of the Criterion Tool & Engineering Co., Dayton, O., died recently at Miami Valley hospital, that city, after a brief illnes of pneumonia, which developed from influenza. Mr. Patterson removed to Dayton with his family six weeks ago from Oswego, N. Y., to which city his body was returned for burial. Mr. Patterson formerly was production engineer with the American Tool & Engineering Co., Cincinnati.

H. Paul Buckingham, president of the Arcade Malleable Iron Co., Worcester, Mass, died at his home in that city, Nov. 20, of pneumonia, aged 32 years. He had been sick less than two days. Mr. Buckingham was the son of George B. Buckingham, for many years proprietor of the Arcade Malleable Iron Co., and the Worcester Malleable Iron Works. Mr. Buckingham was vice president of the New England Foundrymen's association, and a member of the American Foundrymen's association.

Prof. Pierre de Peyster Ricketts, head of Ricketts, Inc., 80 Maiden Lane, New York, mineralogical and mining engineers, died Nov. 20, at his home of arteriosclerosis at the age of 71. For 34 years he was assayist and analytical chemist of Columbia university from which he was graduated in 1871. In 1876 he published his book "Notes on Assaying," the first authoritative work on the subject which has been adopted in various schools and colleges.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

HARRY E. HIGGINS has resigned as director and vice president of the Otis Steel Co., Cleveland, and will sever his connection with the company at the end of December. Mr. Higgins has been connected with the company for seven years, having previously held the position of general manager of the Cleveland Steel Co., Cleveland.

Fred A. Sharp, Springfield, Mass., has accepted a position as cost manager with the Terry Steam Turbine Co., Hartford, Conn.

Charles A. Mackie, of Frazier & Co., has been elected a director of the Superior Steel Corp. to succeed Howard F. Hansell Jr., resigned.

E. G. Gunn, former production manager of the General Motors Co., Detroit, has become chief engineer of the Scripps-Booth Corp., Detroit.

A. V. Foster, of Spitzler, Rorick & Co., Toledo, has acquired the stock of Clark W. and Wyman C. Parker in the Parker Rust Proof Co., Detroit.

Shelley W. Potter, treasurer of the North Adams Trust Co., North Adams, Mass., has resigned to become associated with the Hunter Machine Co., in that city.

Maj. E. Tyden, vice president of the International Seal & Lock Co., now at the Rock Island arsenal, as production major, has been promoted to the rank of lieutenant-colonel in the ordnance division.

E. L. Garrihan, who for 20 years was identified with the manufacturing and sales department of the Bethlehem Steel Corp., resigned recently to become manager of sales for the Tioga Steel & Iron Co., Philadelphia.

David McLain, of McLain's System and the McLain-Carter Furnace Co., Goldsmith building, Milwaukee, now is attached to the ordnance department, Washington, D. C., in the capacity of foundry expert.

L. J. Hoy, formerly chief electrician of the Superior Foundry Co., Cleveland, Ohio, now is associated with the Wm. F. Davis Machine Tool Co., Inc., as technical specialist in their New York office.

Marshall E. Keig, secretary-treasurer of Harry Vissering & Co., Chicago, who entered the army signal corps as private in August, has been commissioned second lieutenant in charge of the purchasing for the signal corps, with headquarters at Chicago.

John V. Powers has been placed in charge of the San Francisco office at 509 Alaska Commercial building, opened by Naylor & Co., 120 Broadway, New York city, dealer in ores, ferroalloys, iron, steel, etc.

H. D. Runciman, who recently was promoted from the position of assistant to the general manager to that of general manager of the Hoover Steel Ball Co., Ann Arbor, Mich., is 28 years old and has had complete control of the corporation's

H. D. RUNCIMAN

interests since the death of L. J. Hoover, former president of the company. He was born in Chelsea, Mich., and after being graduated from that city's high school, obtained a business education at the Ferris institute at Big Rapids, Mich. His first position was that of assistant accountant with the Flanders Mfg. Co., Chelsea and Pontiac, Mich. After two years, he became auditor for the Hoover Steel Ball Co., and after serving two years was made assistant to the late Mr. Hoover, with the title of assistant to the general manager. The directors were unanimous in selecting Mr. Runciman to succeed former President Hoover as general manager.

J. Frank King, secretary of the relief association of the Youngstown Sheet & Tube Co., Youngstown, O., has accepted the position of assistant to Warren F. Perry, industrial engineer of the Brier Hill Steel Co., that city. He will assume his new duties at once. Mr. King is succeeded at the Youngstown Sheet & Tube Co. by Samuel Crosby.

H. E. Blackwell, district manager, Pickands, Mather & Co., at Detroit, who has been assisting in the allocation of the pig iron for the government at the headquarters of the pig iron, iron ore and lake transportation committee in Cleveland, has returned to his regular duties.

W. H. Forbes, of the sales staff of the Carnegie Steel Co., in the Cleveland district, has taken up his old work after having spent nine months in the service of the Y. M. C. A. in France. Mr. Forbes was one of the volunteers among American business men who engaged in this overseas work at their own expense.

Major L. L. Anthes, president of the Anthes Foundry Co., Ltd., Toronto, was made chairman of the iron and steel section of the Canadian Manufacturers' association, which takes up with the war trade board of Canada all questions affecting the interests of the members of that branch.

W. M. Ramsey who for the past six months has been assisting in the work of allocating pig iron through the subcommittee on iron ore, pig iron and lake transportation of the American Iron and Steel institute, at Cleveland, has resumed his connection with Pickands, Mather & Co., Cleveland.

R. H. Morse, C. W. Park and W. S. Hoover have been elected as additional vice presidents of Fairbanks, Morse & Co., Chicago. F. M. Boughley has resigned as treasurer and has been elected secretary and comptroller. W. E. Miller has resigned as first vice president and has been elected vice president and treasurer.

William W. Lewis, who has been with the Western Reserve works of the Brier Hill Steel Co., Youngstown, O., ever since it was opened, resigned recently as superintendent. He will be succeeded by Abner Hughes, who has been assistant superintendent of the plant and who likewise has been connected there since it was started.

R. M. Rush has resigned as assistant district supply manager of the Emergency Fleet corporation for the Youngstown and Pittsburgh districts and has resumed his former duties as district manager of the Kerr Turbine Co., and president of the Rush Machinery Co., Oliver building, Pittsburgh.

Jerome E. Sweet, formerly affiliated with the Brown Specialty Machinery Co., Chicago, now is connected with the sales department of the Sand Mixing Machine Co., New York, and the American Foundry Equipment Co., Cleveland. He has been appointed distributing manager for New England, eastern New York state and northern New Jersey, for the sale of sand mixing machines and sand blast equipment.

J. C. Agnew, general superintendent

of the Mahoning Ore & Steel Co., Hibbing, Minn., has been appointed assistant to A. C. Dinkey, president of the Midvale Steel & Ordnance Co., Cambria Steel Co. and the Mahoning company. He succeeds H. F. Black, deceased. Mr. Agnew will be located temporarily in Pittsburgh and later permanently in Philadelphia.

Kenneth D. Myers, formerly with the sales department of the Sharon Steel Hoop Co., Sharon, Pa., now is a sergeant with Aero Photo Section No. 36, Chanute field, Rantoul, Ill., and has been making aerial flights at the various war expositions being held throughout the country. At the recent Cleveland exposition Sergeant Myers took photographic views of the city from a height of 2000 feet.

L. J. Campbell, vice president of the Youngstown Sheet & Tube Co., Youngstown, O., and son of President J. A. Campbell, who has been serving in France as major of the 309th field artillery, has been promoted to a lieutenant colonelcy. He has been in active service abroad for some time. Lieut. Col. Campbell studied at the school of fire, Ft. Sill, Okla., and has been known as a hard worker and efficient officer.

John C. Cornell, formerly superintendent of the Basic Mineral Co., Pittsburgh, has organized the Cleveland Flux Co., Cleveland, which is manufacturing fluxes for both ferrous and nonferrous metals. Mr. Cornell has had a wide experience in the foundry business, having served as superintendent for the Knight Mfg. Co., Canton, O., and he also was affiliated with the Aultman Co. and the Dick Mfg. Co., of Canton.

Frank D. Carney, formerly superintendent of the Pennsylvania Steel Co., and general metallurgist of the Bethlehem Steel Co., and Lewis B. Lindemuth, formerly assistant superintendent of the bessemer open hearth department of the Pennsylvania Steel Co. and superintendent of the electric furnace and crucible department of the Bethlehem Steel Co., have formed the partnership of Carney and Lindemuth, consulting engineers and metallurgists, with offices at 40 Wall street, New York.

Frank du Pont Thompson, who has been district supply manager of the Emergency Fleet corporation for the Youngstown and Pittsburgh districts, has been appointed manager of purchases and production of the Emergency Fleet corporation at the main office in Philadelphia. Mr. Thompson is well known in Pittsburgh district as a former chief engineer and manager of the Wheeling Mold & Foundry Co., Wheeling, W. Va., and chief engineer of the Lackawanna Steel Co.

Charles M. Schwab, who soon intends to resign as director general of the Emergency Fleet corporation to give attention to business of the Bethlehem Steel Corp., has been asked to address a mass meeting at Youngstown, O., to be held under the auspices of the chamber of commerce. J. G. Butler Jr., who sent the invitation to Mr. Schwab, proposed him as a member of the American peace commission at the recent banquet of the Society of Arts and Science in New York where Mr. Schwab was the guest of honor. Mr. Schwab was likewise invited to be one of the speakers at a Thanksgiving victory celebration in Cleveland.

H. M. Johnson resigned recently as secretary to C. E. Crowthers, general superintendent of blast furnaces and open hearth steel works of the Republic Iron & Steel Co., Youngstown. He likewise was secretary to R. L. Leventry, the company's open hearth superintendent. He now is assistant to G. W. Peffer, general manager of the Donner Steel Co., Buffalo, who resigned not long ago as superintendent of the Republic company's open hearth furnaces. Mr. Johnson is succeeded by J. A. Aiken, formerly in the blast furnace department.

Thomas Cantley, of Glasgow, N. S., who had been appointed a director of the Canadian government railway system, was born in New Glasgow in 1857 and began life as a telegraph messenger boy. He secured a place in the works of the Nova Scotia Steel & Coal Co., rising steadily to his present position as president and general manager. All his life has been spent in the coal and iron districts of his native province. He was president of the Canadian Manufacturers association in 1916. He took a prominent part in war work, being a member of the Canadian shell committee and chairman of the Canadian munition resources commission.

Hardware Jobbers to Meet

To discuss problems of reconstruction as they affect the hardware jobbing trade, the tentatively certified war service committee of the hardware jobbers of the United States will meet in Atlantic City on Dec. 3. The session which will last all day will be held at the Hotel Traymore. This meeting is in conformity with the plan of having the 367 war service committees hold individual meetings prior to the conference of Dec. 4, 5 and 6.

It is announced that if any of the owners or executives of the hardware jobbing houses desire to confer with this committee they will be welcome to meet with the committee and discuss problems which they desire to bring before the conference.

Harry A. Black, Black Hardware Co., Galveston, Tex., has been appointed temporary chairman of this committee and will have headquarters at the Waldorf-Astoria at New York during the week preceding the Atlantic City conference. The tentatively-certified war service committee of hardware jobbers is as follows:

Harry A. Black, Black Hardware Co., Galveston, Tex.; Albert M. Marshall, Marshall-Wells Hardware Co., Duluth; Andrew Carrigan, Dunham, Carrigan & Hayden Co., San Francisco; O. B. Barker, Barker-Jennings Hardware Corp., Lynchburg, Va.; Wallace D. Simmons, Simmons Hardware Co., St. Louis; Henry L. Thompson, Bostwick-Braun Co., Cleveland; Joseph J. Charles, Hibbard-Spencer-Bartlett Co., Chicago; S. L. Orr, Orr Iron Co., Evansville, Ind.; William D. West, Rudolph-West Co., Washington; M. D. Hussie, John Hussie Co., Omaha, Neb.; A. H. Decatur, Decatur & Hopkins Co., Boston.

Keeping Busy

At Detroit with $20,000,000 in Peace-Time Work—Automobile Shortage

Detroit, Nov. 26.—Nonwar construction aggregating $20,000,000 has been released for completion in Detroit through the action of the war industries board in removing priority and building regulations. Work on several office and mercantile buildings, planned or under construction when war was declared will now go forward, as will a number of large industrial projects, including the extension of the Pennsylvania railroad lines to the city from Toledo and the completion of the Ford Motor Co. blast furnaces.

About 2500 industrial plants in Detroit are making rapid progress in readjustment to a peace basis, practically all of them having been doing war work. John A. Russell, state director of the public service reserve, is authority for the statement that the skilled and unskilled labor shortage here is 85,000, with no prospect of relief until American troops return.

Detroit is said to be in a most fortunate position for speedily resuming its peace-time pursuits. The motor car and accessory industry, employing 140,000 men, and with invested capital of more than $300,000,000, lacks only a constant supply of materials, it is said, to put it back in volume production within a few months. There is said to be a deficit of 1,000,000 passenger cars to be met at once.

Normal production of motor cars for 1918 would have been about 4,000,000, as 1,718,000 were produced in 1917. The output was curtailed 30 per cent last March and in July was reduced to 50 per cent of the production rate of last year. Under this curtailment, the estimated output for 1918 will be less than 1,000,000, creating a shortage of approximately 1,000,000 cars for the year.

It is expected that the industry, of which 80 per cent centers in Detroit and vicinity, will be again in full production early next spring, making generous allowance for delay in the filling of orders for steel and other materials. Heavy foreign orders are expected, and are being booked, both for trucks and passenger cars.

One of the most important of recent changes in the motor car industry has been the elevation of Edsel Ford to the management of the Ford Motor Co. Henry Ford has placed the great institution almost entirely in the hands of his son, so that he may devote more of his own time to development of the Henry Ford & Son tractor plant, branches of which will be established in all parts of the country. Mr. Ford also will give attention to the publication of a national weekly paper through which he will air his opinions on various subjects of world interest.

The city will have no idle factories as a result of the ending of the war. The Lincoln Motor Co. plant, the largest in the city founded solely on war conditions, and the largest producer of Liberty aircraft motors in the country, will swing into production of commercial gas engines.

Iron and Steel Financial News

Up-to-the-Minute Fact and Comment Collected and Sifted For Busy Readers

Industry Pushes Plans for Peace Trade

FURTHER progress has been made in the demobilization of industry, but many of the uncertainties of the early transition period remain undissipated. From a financial standpoint, the action of the senate in cutting down the war revenue bill from $8,200,000,000 to about $6,000,000,000 through the reduction or elimination of taxes on luxuries and various miscellaneous taxes, is one of the important current developments. The cancellation of war contracts estimated as involving about $1,757,000,000 is another important item. The government has begun to revise its plans both for the raising and expenditure of money. Manufacturers working on government contracts thus far do not seem to have been actually affected to a broad extent. Many of them working on munitions for the army and navy assert they are going ahead as usual, that cancellations so far as they are concerned have only been for goods on which they would not have started working until late spring. The action of the war industries board in virtually setting aside the priorities schedules is enabling manufacturers to proceed on commercial orders, using the government work as a sort of "backlog." On the other hand, some producers of raw materials are rushing through shipments to manufacturers working on government orders, in order to avoid being asked to cancel or hold up shipments.

Planning for Export Trade

Leaders in the iron and steel industry, also in the copper industry, held informal meetings the past week to consider formation of export combinations, under the Webb act. All manufacturers are turning their eyes toward foreign trade as an outlet for surplus production later. Export merchants report that foreign inquiry has decreased somewhat in recent weeks, foreign buyers being swayed by the same feeling that has prevailed among domestic buyers, a feeling of uncertainty and a desire to move slowly pending possible price declines. However, more large export business in steel products recently has been closed. The exporters say that manufacturers have shown more interest in the foreign trade situation and have approached them with offers of material for early delivery. The ban has been lifted on new construction and a policy of encouraging the building trade to go ahead has been adopted.

Promising as this progress is, a long road remains to be traveled before industry approaches its normal channels. Government influence over prices and distribution of basic commodities may extend for several months and the very question as to duration of this influence is one of the big factors for uncertainty. Owners of railroad securities valued at $5,000,000,000 already have taken measures toward legal action to recover railroad properties from government control. On the other hand, men prominent in the affairs of the iron and steel and copper industries have been inclined to encourage the government in a policy of gradually relinquishing its control of their respective trades, in order to avoid industrial disturbance so far as possible.

The stock market declined during most of last week, with particular pressure on the miscellaneous war order shares, some of which declined two points or more. Shares of steel producing companies as a rule gained fractionally. Wall Street has shown considerable perplexity regarding war order cancellations. It has generally been felt in financial circles, however, that while manufacturers will be allowed a smaller profit on unfinished work than they would have otherwise obtained, they will be amply protected against loss. The movement of the market has indicated that industrial shares generally had discounted all the uncertainties of peace.

Clark Engine and Boiler Under New Owners

The Clark Engine & Boiler Co., Kalamazoo, Mich., has been purchased by outside interests. The property comprises an entire city block and a lot, 60 x 175 feet, or a total in excess of 100,000 square feet; all factory buildings with a floor space of about 70,000 square feet and all machinery, equipment and material on hand. While at present the plant is not running full, it is the intention of the new owners to expand the business. The boiler department will be operated on a 100 per cent basis as soon as possible. New equipment and an electric power plant is being installed. New officers of the Clark Engine & Boiler Co., which was founded 30 years ago by the late George Clark are: President, J. A. Sheldon, Flint, Mich., chief efficiency engineer of the Buick Motor Car Co.; vice president, Edward R. Grace, Detroit, vice president of the Michigan Manufacturer and Financial Record; secretary, B. L. Winchell Jr., Chicago, western manager of the Kerite Insulated Wire & Cable Co.; treasurer, J. A. Gordon, Detroit, commercial and electric trucks; general manager, E. A. Barnes, Kalamazoo, formerly efficiency engineer of the Buick Motor Car Co. Others interested in the company are A. L. Moses, Detroit, manufacturer; A. L. Fenley, Chicago, Kerite Insulated Wire & Cable Co.; A. S. Hodson, Chicago, Union Switch & Signal Co.; James J. O'Meara, chief accountant for the Clark Engine & Boiler Co., and Fred R. Eaton, cashier of the Kalamazoo National bank.

Changes Made in Foreign Trade Statistics

Washington, Nov. 26.—Important revision and extension of the monthly, quarterly and annual foreign trade statistics of the bureau of foreign and domestic commerce, department of commerce, is being made under the direction of G. B. Roorback, of the shipping board. He was detailed to do the work for the department some time ago and the change will become effective about Jan. 1. More than 1500 new items will be added to the export classification and the number of import items will be materially increased. Arrangements provide for an enlarged classification for both imports and exports, instead of the two classifications at present used. Instead of the present alphabetical arrangement of items by commodities there will be a more general assembling of items under groups. The changes are understood to have been determined upon as the result of suggestions from business men, which were invited by the department last spring. It is also said to be probable that figures will be published by calendar instead of by fiscal years.

Hold Up Toluol

For Govt. High Explosive Plants—Spot Buying Predominates

New York, Nov. 25.—The government has revoked all instructions for the shipment of toluol to government trinitrotoluol plants. Although the contracts themselves still are in effect, it is considered that this action foreshadows their early cancellation, as, with the war ended, it is not believed that much additional toluol will be wanted for the manufacture of trinitrotoluol. It still is possible to obtain toluol for commercial consumption only by making application to the war industries board, but it is

believed that the supply will be set free shortly.

The coal tar products market during the past week has been characterized by considerable buying for spot and nearby consumption. In view of prevailing conditions, consumers are not anxious to commit themselves for the future. Considerable business was transacted in benzol. This product continues to be sold at 22 to 27 cents per gallon. Owing to the fact that the entire supply of solvent naphtha up until about 10 days ago was going to the government, consumers are purchasing this product heavily, now that it has been released for the market. Prices range from 20 to 25 cents per gallon and most of the current business involves spot and nearby requirements.

For the first time in many months it now is easy to obtain licenses for exporting phenol. The amount of business being closed, however, is considerably smaller than was expected. There are numerous inquiries, but it is not known how many of these will be closed. The market may be quoted at 40 to 44 cents per pound.

A fair amount of business continues to be transacted in naphthalin, involving mainly contract requirements for delivery over the coming season. The market is quoted at 12½ cents per pound for balls and 10 cents for flakes.

Sulphate of ammonia continues to be delivered to government nitrating plants on the same large scale as before the armistice was signed. It is expected, however, that deliveries on nitrators' contracts will be cancelled shortly, thus releasing large quantities for the commercial market. In the meantime sales for nearby delivery continue to be made to fertilizer manufacturers on the basis of $4.50 to $4.75 per 100 pounds at tidewater.

Coke Oven By-Products

Spot	
Per Gallon at Producers Plant	
Pure benzol	$0.22 to .27
Toluol (on sales sanctioned by government) (tank cars)	1.50
Toluol (on sales sanctioned by government) (drums)	1.55
Toluol (for government)	1.50
Solvent naphtha	0.20 to .25
Per Pound at Producers Plant	
Phenol	$0.40 to .44
Naphthalin, flake	0.10
Naphthalin, balls	0.12½
Per 100 Pounds at Seaboard	
Sulphate of ammonia (to fertiliser trade)	$4.50 to 4.75
Contract	
Pure benzol	$0.22 to .27
Toluol	no market
Solvent naphtha	0.20 to .25
Per Pound at Producers Plant	
Phenol	nominal
Naphthalin, balls	$0.12½
Naphthalin, flake	0.10
Per 100 Pounds at Seaboard	
Sulphate of ammonia (for commercial use)	no market
Sulphate of ammonia (for government)	$4.50

Industry Gives Up Profits

Steel Director Replogle Estimates Price Regulation Cost Billions to Iron and Steelmakers—France Seeks Big Tonnage

GOVERNMENTAL regulation of prices, since its inception in September, 1917, until the signing of the armistice, as estimated by J. Leonard Replogle, director of the steel supply of the war industries board, cost the iron and steel industry of this country at least $3,000,000,000. In oher words, artificial price restraint prevented the producers from obtaining high prices which would have enlarged their profits by this figure. The singular feature of the situation, in the opinion of Mr. Replogle, is that in depriving them of this huge sum, the government price-fixing authorities had the hearty and unanimous cooperation of the producers affected.

It was through the direction of Mr. Replogle, a typical representative of the steel industry, that the industry achieved results which made it possible to win the war. When the inside history of the direction of production which made it possible to carry on the war is written, it will be found that there will be no brighter page than that devoted to Mr. Replogle's achievements. Recognition of his services already formally have been expressed by the British embassy and other representatives of foreign governments.

Industry to be Helped

These remarks were made by A. M. Ritchie, counsel for the war industries board, at a joint meeting of the New York members of the various engineering societies held Nov. 20 at the Engineering Societies building, New York, for discussion of the subject, "The Demand for Steel and the Conservation of Steel."

"Foreign countries have studied after-the-war conditions more than we," said Mr. Ritchie. "England began work on her after-the-war organization in 1916. These countries were at war a much longer period than we, however, and when the war ended, we still were straining every nerve to increase production for war. Therefore, we have no definite plan to pursue in aiding the industries of the country in getting back to a peace basis.

"There is some question as to whether the government shall continue its control in order to let down industries gradually. Some members of the war industries board think there should be a minimum of such control and regulation, and that industries should be permitted to get back on their own bottom without delay. One thing is sure and that is that there will be no restrictions that industry does not want. We will have only such control as industry wants and asks for.

"Some industries will be hurt in switching from a war back to a peace basis. Some also were hurt in going from peace to war. This is something that we cannot hope to prevent. It is a part of the cost of the war."

Capt. P. E. Dulieux, of the French high commission to this country, drew a graphic picture of the French and Belgian reconstruction needs. He explained that although France, by reason of the outcome of the war, ultimately will have the biggest iron and steel productive capacity in Europe, that practically all plants must be rebuilt, due to the systematic destruction which the German forces carried on at manufacturing plants which come within their control. The Germans made use of such plants as were suitable for manufacturing war munitions, but owing to the shortage of scrap in Germany they scrapped all equipment and plants which were not urgently needed. France, in 1913, was producing about 5,000,000 tons of pig iron per year. Of the plants which achieved this production, 80 per cent were seized and destroyed by the Germans during the war. Not only must these plants be rebuilt, but a great deal of steel will be required in the form of rails, structural material, etc., while France temporarily is unable to produce. Capt. Dulieux estimated that over the next two to four years France not only will need an amount of steel equivalent to her prewar capacity, but in addition, 6,000,000 to 8,000,000 tons per year for reconstruction. The latter tonnage, it is expected, will be obtained from the United States and England. "After you have provided us with the steel for reconstructing our industries, we will be the biggest producers of iron and steel in Europe," said Capt. Dulieux. "We will compete against you in the European fields. For assisting us in reconstructing our industries, we thank you. But, if you did not meet us in competition you would meet Germany, and we think that you would prefer France."

Tells of Secret Report

Capt. Dulieux told of a secret report which was drawn up by German engineers and submitted to the German government early in the war. This report stated that it was necessary for Germany's growth to secure control of the Briey basin in France.

This report mentioned as another reason for the desirability of obtaining control of the French iron district, the fact that Germany depended upon slag from the bessemer process for obtaining phosphates for use as a fertilizer. Capt. Dulieux stated that Germany formerly obtained only 20 per cent of her iron ore requirements from legitimate German deposits while the remaining 80 per cent was obtained from Lorraine and Swedish and other sources. As a result of being stripped of the iron ore resources of Lorraine, Capt. Dulieux said, Germany never in the future will be able to prepare for and wage a war such as the one just ended.

Machinery Men Rest on Their Oars

Attitude is One of Waiting to See What Will Develop Next—Cancellations Have Improved Deliveries—Some Peacetime Orders Received—Used Machinery Prices Drop—Railroad and Automobile Companies Preparing Lists

A WAITING attitude is pronounced in the present machine tool and equipment market. Without anxiety, dealers are watching for developments which some say must come soon, but which others do not anticipate until after Jan. 1, 1919. This present lull was ushered in by the 10 or 14-day period of cancellations which followed the now historical date, Nov. 11. In that period users were as anxious, perhaps more so, to place cancellations as they were to close orders a short time ago. Cancellations in large numbers were received in the last week by eastern dealers, but sellers in other districts report a decline in the receipt of revocations of previous purchases. The eastern cancellations mainly were on equipment for projectile plants. On the other hand some orders were placed with midwestern dealers by shellmaking plants to enable the latter quickly to work out their contracts.

A large factor contributing to the willingness of dealers to drift with the times and take things as they come is the apparent disinclination of the government to disrupt business but rather to aid in every way possible. A tendency is apparent to neutralize the effect of many cancellations by assurances, on the part of those who have given much time to studying the situation, of much peacetime work now in prospect.

Already some reaction from the earlier impulse of buyers to cancel is setting in, in some directions. This is noted in Cleveland by one dealer who received a cancellation of a large tool for war work accompanied by an order for a larger tool of the same character desired for peace work. Other strictly commercial orders are coming in from plants which could not obtain equipment as long as wartime priority rulings prevailed. While it is a little early to expect the automobile manufacturers to revert to quantity production of pleasure cars and issue lists of needed equipment, these are not far off. According to dealers many of these plants are awaiting reduced prices. A few small orders are being placed and several tentative inquiries are being received from automobile plants whose equipment is worn out from overusage on munitions, etc.

Railroads are known to be figuring upon large tool needs in 1919. The issuance of many lists is looked upon as a near future possibility. The New York Central is buying a little for Collinwood and Ashtabula, O., and for Elkhart, Ind. The Nickel Plate also is buying in Cleveland while the Pennsylvania continues to want machines for various shops in Pennsylvania, Ohio and Indiana. The latter road has bought several cranes for Northumberland, Pitcairn, Gardenville, Williamsport and Juniata, Pa. The Baltimore & Ohio railroad also is inquiring for traveling cranes as is the Cumberland Valley for Chambersburg.

Much used machinery is beginning to appear on the market. Prices are beginning to decrease on second-hand equipment. One dealer prominent in northeastern Ohio trade, reports that in one mail he received nine reduced listings. More are anticipated.

Removal of the federal and state restrictions on building by the war trade board it is believed will quicken the market for miscellaneous equipment. Many projects held up by the war, now will be permitted to go ahead. No trouble in obtaining deliveries is anticipated. One of the chief effects of the many cancellations filed recently is expedited deliveries. Makers have been able to give attention to stock orders, so much so that dealers have had to call a halt, since warehouse space was becoming overcrowded.

Extensive Cancellations Bring Improved Deliveries

CANCELLATIONS now are becoming more numerous in the eastern machine tool market. Projectile plants in New England are contributing more freely to the total volume of countermanded orders, and the effects of the government's curtailment of the airplane program are more in evidence. So far, these cancellations have affected for the most part only such orders as have been placed recently, and, as a general proposition, have inflicted no particular hardship upon sellers. There have been, nevertheless, several instances in which the manufacturer has felt justified in taking a determined stand against the acceptance of such cancellations, and where the dealer has been involved the situation has been made exceedingly difficult. It is believed that as soon as the policy of the government becomes more clearly defined, much of the present uncertainty will be eliminated.

As a result of current cancellations, deliveries are somewhat better. Some manufacturers now are offering certain types of machines for prompt shipment, where until recently such equipment could not be delivered for perhaps several months. This is particularly true with regard to special equipment. With the more standard types, the improvement is not so marked. Radials continue to hold five to six weeks off. Planers appear unchanged at two to three months. A similar delivery continues to be quoted on the larger sizes of lathes. Milling machines, however, which a month or so ago, were not to be had under two months, are now available within two or three weeks, and grinders, deliveries on which were formerly five to six weeks off, can be had at this time for almost immediate shipment. Screw machines are being quoted by most manufacturers for prompt delivery.

Among companies in the east which recently have cancelled considerable equipment is the H. H. Franklin Mfg. Co., whose contract with the Wright-Martin Airplane Corp. has been annulled. While some of the new tools will be diverted to the Long Island City plant of the Wright-Martin corporation, much of the equipment ordered will not be required by either company. The Wright-Martin corporation has notified its employes that work will be continued at both its Long Island City and Brunswick, N. J., plants. Considerable equipment recently has been cancelled by the Italian government.

New demand during the past week has been comprised of small, miscellaneous inquiries. Some buying has been done by the railroads, but not on a large scale. It is

Masters of Every Situation
Agathon Alloy Steels have made their record, too. In a few short years and the name of Agathon has risen into prominence.
While the birdman has been solving the problems of the air we have been working to master the solutions of our problem—the Acme of perfection in Alloy Steel.
That we have succeeded is evident by the demands made upon us by the government.
They always serve your purpose best.
The Central Steel Co.
Massillon, Ohio Agathon City
Branch Offices:
Detroit Office: 326-27-28 Ford Bldg., F. Walter Guibert, District Representative
Cleveland Office: Hickox Bldg., The Hamill-Hickox Company, District Representative
Chicago Office: 1370 People's Gas Bldg., 122 So. Michigan Blvd., C. H. Beach, Dist. Sales Manager
Philadelphia Office: 603 Widener Building, Frank Wallace, District Sales Manager
Syracuse Office: 621 University Block, T. B. Davies, District Sales Manager
Export Dept.: 30 Broad Street, New York
AGATHON STEELS
AGATHON
ALLOY STEELS

understood that the New York, New Haven & Hartford, the Seaboard Airline, and the Chesapeake & Ohio railroad have made up their budgets for 1919. Buying by the shipyards at this time includes some punching and shearing equipment for the W. & A. Fletcher Co., Hoboken, N. J.

Much interest in the crane market now is being centered upon the requirements of the Pennsylvania railroad. Four 25-ton gantry cranes, with 54-foot span, are required for Northumberland, Pa., and two more of similiar size for Pitcairn, Pa. Two 5-ton gantry cranes, with 48-foot span, and one 5-ton gantry, with 44-foot span, are also to be purchased. A 10-ton overhead crane, with 36-foot span, is to be purchased for Gardenville, and a 3-ton bucket-handling crane, with 52-foot span, for Williamsport, Pa. It is understood that the 30-ton overhead crane for Brooklyn and the 25-ton gantry cranes for Greenville, N. J., have been eliminated. The Pennsylvania has recently purchased two 60-ton overhead cranes from the Shaw Electric Crane Co., Muskegon, Mich., and one 10-ton overhead from the Whiting Foundry & Machine Co., Harvey, Ill., for Juniata, Pa. The Baltimore & Ohio is inquiring for a 15-ton traveling crane, with 98-foot span. The Cumberland Valley railroad is inquiring through Chambersburg, Pa., for 150-ton, double trolley, traveling crane, with 79-foot span, and a 15-ton traveler, with 77-foot span. The Reading railroad is expected to change the specifications of the 250-ton crane recently inquired upon for an erecting shop at Reading, Pa. The General Electric Co., Schenectady, N. Y., continues in the market for one 20-ton and two 15-ton travelers. The Bethlehem Steel Co., Bethlehem, Pa., is inquiring for one 10-ton and three 5-ton overhead cranes.

Railroad Inquiries Interest Pittsburgh Dealers

CONTINUED inquiries from the railroads, particularly the Pennsylvania lines west, for shop equipment and the placing of some business are the bright features of an otherwise dull machinery and tool market in Pittsburgh. Wholesale cancellations of orders for equipment for government projects have upset the trade. New inquiries of importance are not expected until the readjustment of industrial conditions to a peace basis is farther advanced. It is observed in connection with government work, where the government provided the machinery that the ordnance officials took special pains to see that none of the equipment that arrived at the plants after work was ordered suspended was used. This action was dictated by the wish to prevent the machinery from becoming classed as second-hand. Fears still run strong that much used machinery will come on the market from plants that abandoned peace projects to make munitions and guns.

Chicago Dealers See Light Ahead

MACHINE tool manufacturers in the Chicago district still find themselves in the midst of much confusion and uncertainty. Cancellations on account of the termination of war contracts have been many but are becoming less. The attitude of the government and machine tool builders is one of mutual helpfulness and means are being sought to minimize the effect of cancellations as far as possible. On standard machines which can be used for other than war work, adjustments are likely to be made to allow their completion and sale on the open market. Some dealers find buying by general manufacturers for nonwar use is coming to the front, many machinery users not on the former preferred list inquiring now for equipment they could not obtain during the war. Railroads are becoming interested and numerous lists are said to be in preparation. The large list recently put out by the Pennsylvania railroad is of some interest here although most of the equipment is for use in the east.

Along with legitimate cancellations are some unreasonable requests for cancellation and even for return of machines already delivered. It is a question what will be done with some large orders which the government cannot use now that the munition program has been stopped, but it is believed many standard machines will be taken from manufacturers and stored to use in replacement as other equipment wears out in arsenal use. The Chicago Gear Mfg. Co. is planning a new plant. The Reed Foundry & Machine Co., Kalamazoo, Mich., is making plans for an extension to its tractor department. The Ft. Wayne & Northern Indiana Traction Co., Ft. Wayne, Ind., will build a car shop. The Keller Mfg. Co., Minneapolis, will build a foundry.

Cincinnati Receives Cancellations

IN Cincinnati the machine tool situation has developed in an interesting manner. Reports from Washington are that no drastic action will be taken, but this is somewhat offset by the number of cancellations, or requests for them, that are being made. Fortunately the makers of electric drills and grinders have not yet been called on to any considerable extent for suspending operations. Other manufacturers of small tools have been less fortunate. Quite a number of both skilled and unskilled workmen are being laid off, as there is now no night or overtime work of any character being done in any shop. Inquiries continue to be received from time to time from Japan and South America. Toolmakers expect the export trade to open up now that the shipping facilities are becoming increasingly bettered.

Reaction is Apparent in Cleveland

FEW inquiries for machine tools are being received in the Cleveland market. Dealers see a marked tendency to postpone placing of orders because reduced prices are anticipated. In fact several users in Cleveland tell dealers' representatives frankly that they are so sure prices are going to come down after the first of the year, they will not buy until that time. Inquiries that do break are for small lots of machines, a radial drill here, two grinding machines there, a planer, a milling machine or two lathes some other place but nothing sizeable has come to light in some time.

While it is rather early to look for the reaction after the recent cancelling movement, those who have studied the situation, claim it already is starting. Tentative inquiries are being made by some of the automobile companies and a few orders are being placed. More business would be done by the automobile manufacturers, it is claimed, if they were assured supplies of steel at lower prices. Several have already reduced prices on their cars including the Cadillac, the Chevrolet, Maxwell, etc., and much equipment buying is expected shortly after the first of 1919.

Extensive cancellations have had one noticeable result. Makers have been able to give attention to stock orders which they have carried on their books for a year, a year and one-half and in some cases two years. On the receipt of cancellations from plants operating on war work, they have given immediate attention to what

Four Year Increase in Latin American Trade $1,000,000,000

INQUIRIES from foreign countries are beginning to find their way to machine tool markets in the United States now that the restrictions imposed during the war are removed. These inquiries are coming particularly from Japan, England, France, Belgium and South America. The latter country is expected to develop an increasingly large market for equipment built in this country. The increase in trade between it and the United States during the war has been great, as is pointed out by John Barrett, director general of the Pan-American Union in his analysis of the latest department of commerce figures. In view of the growth of machine tool trade with South America, the data are interesting to builders and dealers.

Mr. Barrett states that the total trade between the United States and the 20 Latin-American countries showed during the fiscal year 1917-18 just closed the extraordinary increase of one billion more than that of 1913-14, the last fiscal year before the outbreak of the war. The United States exports to and imports from Latin America reached the total of $1.750,000,000, in contrast to $750,000,000 four years ago. The official records prove that nothing equal to this trade expansion has heretofore been known in the history of the world.

Exports from the United States to Latin America grew from approximately $280,000,000 in 1913-14 to $720,000 000 in 1917-18, or 257 per cent. Imports from Latin America to the United States increased from $470.000.000 to $1,030,000.000 or 214 per cent. The grand total of exports and imports advanced from $750,000,000 to $1,750,000,000 or 235 per cent.

WAR SAVINGS STAMPS

are known as "stock" orders. Shipments were arriving so frequently at dealers' warehouses that one had to send out a letter to all builders, stating that he did not wish to cancel any orders but did desire to have shipments held up since his wareroom was overcrowded. In many cases cancelled machines have been diverted to peace-time plants and no hardship was experienced by any of the parties concerned. Regular commercial work is forging ahead and a few "peace" orders are being received. In contrast are a few hurry up orders from shell-making plants for a few tools to enable speedy production in running out a projectile contract.

Radically different from the usual procedure, one dealer last week called in all of his salesmen from the road and asked them to make no effort to sell equipment. Other dealers however are busier than ever and while not expecting their salesmen to return with liberal orders from each trip, are keeping in touch with prospective users, making regular calls and rendering such service as is possible so that when machinery is needed they will be remembered. While opinions vary as to the length of the present lull, the consensus of opinion is that a change will come within a few weeks or after the holidays. Things that are being watched closely are the developments out of Washington, the attitude of labor and the possibilities in export trade.

Railroad inquiry is at present light but it is known that 1919 requirements are being considered and tabulated. Large equipment lists are expected to appear in a few weeks from many of the railroads which have not been able to obtain equipment for some time. Among recent purchases by the New York Central railroad are one open side planer and three milling machines, one each for Collinwood, and Ashtabula, O., and Elkhart, Ind. The Nickel Plate also purchased a milling machine for Ashtabula. The Pennsylvania lines west issue inquiries almost daily for machine tools and equipment. For the Mahoningtown, Pa., shops, the following tools are desired: 100-inch tire boring mill; 2¼ x 26-inch hollow hexagon flat turret lathe; 20-inch wet emery grinder; 30-inch x 10-foot centers engine lathe; universal woodworker or planer and jointer; 48-inch x 12-foot centers heavy duty engine lathe; triple head ½ to 2-inch bolt cutter; 54-inch vertical boring mill; 600-ton hydraulic wheel press. One double end punch and shear is wanted for the Pennsylvania's Pendleton, O., shops, and for the Stark, O., shops, the following are asked: 42 x 42-inch x 10-foot planer; 48 x 48-inch x 10-foot planer; 52 or 54-inch boring mill; 100-inch tire boring mill; extra heavy double head axle lathe; 48-inch extra heavy car wheel boring mill; 42-inch coach wheel lathe; horizontal boring and milling machine; piston rod grinder; 400-ton hydraulic wheel press; 600-ton inclinable hydraulic wheel press; two 52-inch vertical boring mills, and three 90-inch driving wheel lathes. At Terre Haute, Ind., this road requires 24-inch hand feed timber rip saw; 36-inch heavy automatic cut off saw; vertical hollow chisel car mortiser; planer and sizer; 48-inch large band rip saw; 36-inch swing cut off saw; large self-feed rip saw; heavy three spindle car borer, and woodworking machine. Much of this equipment will be bought in the east.

Reduced prices on listing of used machinery already are being received by dealers. More are anticipated by early mails. A reduction of $700 on a punch and shear and one of $400 on a planer with other reductions from $250 to $1250 have been received. That a large number of used machines will find their way to the market at an early date is almost a foregone conclusion. John F. Godfrey, Elkhart, Ind., is building a small machine shop and is in the market for its equipment. The Highway Iron Products Co., Ligonier, Ind., is in the market for punches, shears, air hammers, compressors, etc.; the Ogden Multiplier Co., Binghamton, N. Y., wants used turret lathes and drill presses, and the Twin City Plumbing & Heating Co., Minneapolis, is in the market for a pipe nipple cutting off machine of ⅛ to 2-inch capacity.

New Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Among New England Factories

DERRY, N. H.—The factory of the New England Fiber Mills Co. was damaged by fire Nov. 14. Loss was estimated at $125,000.

BOSTON—The Arthur C. Harvey Co., dealer in iron and steel, has purchased more than 300,000 square feet of land in the Brighton district for future development. It adjoins the seven acres recently purchased.

CAMBRIDGE, MASS.—The Lever Bros. Co. has let the contract for a brick, steel and concrete, fireproof, 3-story, 53 x 60-foot addition to its factory.

CAMBRIDGE, MASS.—The branch factory of the Atwood & McManus Box Co., Chelsea, Mass., was damaged by fire, Nov. 19, with a loss estimated at $150,000.

LOWELL, MASS.—The United States Cartridge Co. has let the contract for a brick, 2-story, 75 x 150 foot addition.

PALMER, MASS.—The Palmer Foundry & Machine Co. recently started on the erection of a new foundry building here.

WESTFIELD, MASS.—The Westfield Mfg. Co. has let the contract for a brick, mill construction, 2-story, 43 x 186-foot storage building, to cost $30,000.

BRIDGEPORT, CONN.—The New England File Co. has been incorporated with $15,000 capital.

WOONSOCKET, R. I.—The Woonsocket Machine & Press Co. has been incorporated to make mill machinery with $750,000 capital, by Albert A. Jenks, Leroy Fales, Herbert G. Beede, all of Pawtucket, R. I., and Edward Rathbun.

WORCESTER, MASS.—The William H. Sawyer Lumber Co. has received a permit to build a new plant, replacing the one damaged by fire, Oct. 31.

HARTFORD, CONN.—Swift & Co. will build a brick, 3-story, 90 x 110-foot building, to include a 2-story refrigerating plant, to cost $150,000.

HARTFORD, CONN.—The Pratt & Whitney Co. has let a contract for the erection of a brick, 1-story, 50 x 200-foot addition to its foundry.

NEW BRITAIN, CONN.—Landers, Frary & Clark have let a contract for the erection of a brick and concrete, 2-story, 50 x 108-foot addition to its plant.

NEW HAVEN, CONN.—The New York, New Haven & Hartford railroad has let a contract for the erection of a brick, 3-story, 48 x 153-foot office building, to cost $80,000.

NEWINGTON, CONN.—The mill of the Hartford Paper Board Co. was damaged by fire Nov. 14, with a loss of $125,000.

WEST HARTFORD, CONN.—The W. R. Bennett Co. has been incorporated to make furnaces, machinery, etc., with $100,000 capital by W. R. Bennett, M. J. Bennett and H. E. Shaw. It has let the contract for a brick, 1-story, 35 x 75-foot factory addition.

Panama Inquiry

FOR the Panama canal, the government is asking bids in circular No. 1239 on a complete incinerator plant. This plant is to be capable of burning 60 tons per day of 24 hours, with stack capacity of 90 tons. The contractor is to furnish hand-operated hoists for handling the charging doors. Two 3-ton overhead cranes will likewise be required. Bids on one 8-foot engine lathe, belt-driven with 18 to 20-inch swing also are required as well as on one sharpener machine for automatic rip and crosscut circular saws; one stretcher machine, geared roll, suitable for 17 gage saws and thinner and from 2 to 6 inches wide; one No. 2 and one No. 3 machine, each complete with dies, with one extra set of dies and one set of dies complete for No. 1 Toledo adjustable machine.

OHIO STEEL CASTINGS

Quality PLUS Service

The whirring of the airplane—the roaring of the fast express—the thundering chug of the rapidly approaching motor truck, all *proclaim the victory of Ohio Steel Castings over "Power"* by proving the ability of these castings to withstand the terrific, racking, straining shocks of the mightiest engines constructed by man.

If you are in need of Tractor, Motor Truck, Automobile or other small castings—castings of a quality and strength fit for the most strenuous service specify *Ohio Steel Castings.*

Let us figure on your requirements.

The Ohio Steel Foundry Co.

Plants

Springfield, Ohio Lima, Ohio Bucyrus, Ohio

Along The Atlantic Coast

BUFFALO—G. Elias & Brother, Inc., are asking bids on a gas producer plant.

BUFFALO—The Atterbury Motor Car Co. has had plans prepared for the erection of an addition to its plant.

BUFFALO—The Buffalo Pressed Steel Co. has had plans prepared for the erection of a 1-story, 20 x 35-foot addition.

BUFFALO—The Buffalo Dry Dock Co. has had plans prepared for the erection of a 2-story addition to its punch shop.

DUNKIRK, N. Y.—The Atlas Crucible Steel Co. plans the erection of a 1-story addition.

ELMIRA, N. Y.—The James Mfg. Co. contemplates the erection of an addition.

GLOVERSVILLE, N. Y.—The Hudson Woodenware Co. is contemplating the erection of a new plant.

HEMPSTEAD, N. Y.—A syndicate, headed by M. F. Bramley, Cleveland, has purchased a 33-acre site here, and plans to erect a factory for the manufacture of airplanes.

NEW YORK CITY—The Atlantic Basin Iron Works, manufacturer of machinery, recently awarded a contract for the erection of a 2-story forge shop.

NEW YORK CITY—The Metal Disintegrating Co. is having plans prepared for the erection of four 2-story factory buildings.

NEW YORK CITY—Brewster & Co. is altering its 5-story automobile manufacturing plant at a cost of $35,000.

NEW YORK CITY—The Empire Art Metal Co. is having plans prepared for the erection of a 2-story addition to its plant.

NEW YORK—The Ordnance Engineering Corp. recently awarded a contract for the erection of an extension to its plant, 60 x 100 feet. The addition is to cost $26,000.

NIAGARA FALLS, N. Y.—The National Carbon Co. will build a 2-story addition, 80 x 80 feet, to its plant on Buffalo avenue.

NIAGARA FALLS, N. Y.—The Electro-Metallurgical Co. will build an addition to its plant here for the manufacture of ferroalloys, to cost $14,000.

POUGHKEEPSIE, N. Y.—The Palitine Aniline & Chemical Co. is having plans prepared for the erection of an addition to its plant, to cost $40,000.

BENTLEYVILLE, PA.—Beck Bros. are having a garage erected at Main and Washington streets.

BRIDGEVILLE, PA.—The Universal Rolling Mill Co. has bought six acres as a site for an addition to its plant.

BROWNSVILLE, PA.—The Monongahela railway will build a 1-story addition to its plant in South Brownsville.

CHAMBERSBURG, PA.—A $15,000 repair shop, one story, 85 x 210 feet, will be erected here for the Cumberland Valley railroad.

CHARLEROI, PA.—The Dawson Coal Co. will build a coal tipple and drive piling on the Monongahela river, opposite Millsboro in the fifth pool.

CHESTER, PA.—Fire recently damaged a part of the plant of the Chester Steel Castings Co. The loss was estimated at $10,000.

CLIFTON HEIGHTS, PA.—The Knot Mfg. Co. is having plans prepared by F. E. Hahn, 1112 Chestnut street, Philadelphia, for a 1-story engine house, 60 x 80 feet.

CORRY, PA.—The Standard Turn Buckle Co. has let the contract for a 1-story addition.

ELLWOOD CITY, PA.—The Pennsylvania Iron & Steel Products Co. has been organized with a capital of $100,000 and may build a plant here in the near future.

ENOLA, PA.—A $300,000 machine shop will be erected here for the Pennsylvania railroad. Erwin & Leighton have been awarded general contract.

ERIE, PA.—The Triangle Tool Co. is having plans prepared for an addition to its plant.

ERIE, PA.—The Erie Specialty Co. has let the contract for an addition 53 x 165 feet.

ERIE, PA.—The Brown Folding Machine Co. has had plans prepared for a 1-story factory to cost $25,000.

ERIE, PA.—Plans are being drawn for the erection of a cold storage building for the Lake Shore Ice Cream Co.

FRANKLIN, PA.—The Chicago Pneumatic Tool Co. will build an addition, 50 x 150 feet, to its plant here.

GLENSHAW, PA.—The Thomas Spacing Machine Co., Pittsburgh, contemplates the erection of an addition to its plant at a cost of $100,000.

HARRIMAN, PA.—The Merchants Shipbuilding Co. is receiving bids for the construction of a 3-story brick and stone Y. M. C. A. building, to cost $250,000.

IRVINE, PA.—The National Forge & Tool Co. is building a 1-story, 40 x 60-foot forge shop addition to its plant.

JOHNSTOWN, PA.—The Ideal Coal Co. will increase the capacity of its Sunnyside plant here.

LEBANON, PA.—The Lebanon Valley Iron & Steel Co. has started work on an automatic puddle mill for its plant, to cost $500,000.

LEETSDALE, PA.—The Riter-Conley Co. has let the contract for a rivet and bolt shop here.

MERCER, PA.—The Mercer Water Co. is arranging to spend $25,000 for additions to its plant.

LEBANON, PA.—The Lebanon Steel Foundry Co. is taking bids for the erection of additions, 50 x 78 and 24 x 14 feet.

MARIETTA, PA.—The Pennsylvania railroad has let the contract for yards and shops at Shock's Mill, near here, to cost $5,000,000.

MEADVILLE, PA.—The Phoenix Iron Works Co. will purchase considerable equipment for its plant here soon.

MIDLAND, PA.—The Pittsburgh Iron & Steel Foundry Co. will build an addition to its plant here.

MILTON, PA.—The Milton Mfg. Co. has arranged to build a pump house, 50 x 80 x 100 feet, to cost $100,000.

NORTH EAST, PA.—The Eureka Co. will build three additions to its plant at once.

NOXEN, PA.—The Armour Leather Co. will rebuild its tanning plant here, to cost $1,000,000, and also will build a $50,000 boiler plant.

PHILADELPHIA—J. M. Kennedy, Tenth and Chestnut streets, is building a 1-story machine shop, 70 x 105 feet.

PHILADELPHIA—The Pennsylvania Chemical Co. has awarded a contract for erecting a $15,000 factory building, two stories, 40 x 50 feet.

PHILADELPHIA—The Infant Wear Knitting Corp. has let a contract for the erection of a 2-story knitting mill, 40 x 80 feet.

PHILADELPHIA—Horace W. Castor, is preparing plans for the erection of a 5-story building, 70 x 120 feet, for the Autocar Co.

PHILADELPHIA—F. B. Davis has a contract to make alterations to the plant of F. C. Merz, Indiana avenue and A street.

PHILADELPHIA—The railroad shops and buildings now being constructed by the Pennsylvania railroad at its yards here, are estimated to cost with equipment, about $1,000,000.

PHILADELPHIA—The Keystone Lubricating Co. has acquired addtional land adjoining its plant, on which it is reported an addition to the plant will be built.

PHILADELPHIA—F. A. Havens & Co. has a contract to erect a 1-story addition, 27 x 28 feet, to the machine shop of the Cramp Shipbuilding Co. The extension will be erected at a cost of $4500.

PHILADELPHIA—Wark & Co. recently received the contract for the erection of a 1-story pump house, 21 x 37 feet at Fort Mifflin for the Navy department.

PHILADELPHIA—J. P. Walsh has the contract to erect a 1-story addition, 17 x 52 feet, to the plant of J. D. Garver & Sons Co., Tulip and Somerset streets.

PHILADELPHIA—J. G. Brill Co. has awarded several contracts for the completion of its 2-story addition, now in course of construction. The building when completed will be 86 x 140 feet and will cost about $75,000.

PHILADELPHIA—George C. Daugherty has the contract for the erection of a 3-story building, 32 x 75 feet and a 2-story building, 32 x 75 feet, for F. P. Mellon. One building will be erected at 1212-14 Ludlow street and the other at 1726-28 Ludlow street.

PITTSBURGH—The Pittsburgh Model Engine Co. has let the contract for a 1-story addition 40 x 240 and 30 x 180 feet, to its plant at Peru Ind.

PITTSBURGH—The H. Koppers Co. has the contract for an explosives plant for the United States ordnance department at Seattle, to cost $120,000.

PITTSBURGH—The Baker-Dunbar-Allen Co. will build a car-unloading dock for the Wheeling Iron & Steel Co.

PITTSBURGH—The University of Pittsburgh will build a 1-story repair shop on Berthoud street, to cost $6000.

PITTSBURGH—The Pittsburgh Crane & Equipment Co. has let the contract for a 2-story machine shop to cost $20,000.

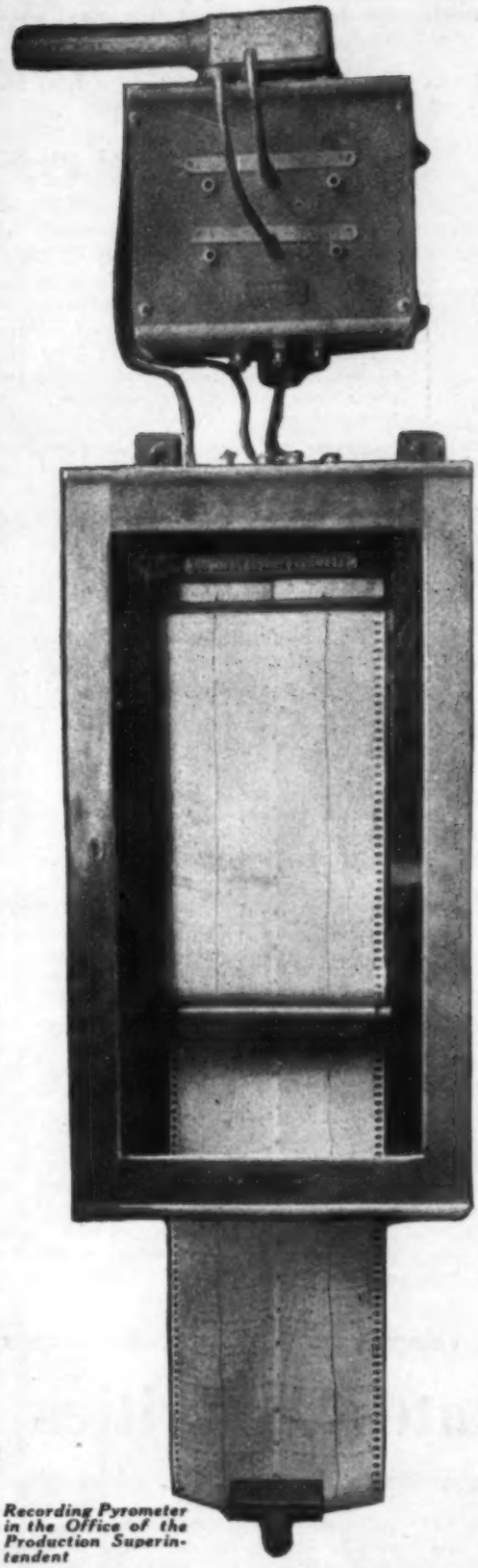
PITTSBURGH—The Pitt Construction Co., this city, was low bidder on the Aughwick creek bridge for

Government Inquiries

BIDS on the following equipment are desired by the navy department, bureau of supplies and accounts:

Four universal machines, 7091½, Alexandria, Va.
Four milling machines, 7092½, Alexandria, Va.
One drilling machine, 7093½, Alexandria, Va.
Two drilling machines, 7094½, Alexandria, Va.
Eight drilling machines, 7095½, Alexandria, Va.
One boring and drilling machine, 7110½, Brooklyn, Dec. 2.
One threading machine, 7111½, Washington.
Three engine lathes, 7112½, Norfolk, Va.
One vertical milling machine, 7130½, Alexandria, Va.
One double emery grinder, 7131½, Charleston, Dec. 2.
Two vertical boring and turning mills, 7140½, Washington.
Two milling machines, 7141½, Alexandria, Va.
One milling machine, 7142½, Alexandria, Va.
One milling machine, 7143½, Alexandria, Va.
One milling machine, 7144½, Alexandria, Va.
One milling machine, 7145½, Alexandria, Va.
Two lapping machines, 7147½, Newport, R. I.
One screw machine, 7162½, Washington, Dec. 2.
One hydraulic press, 7179½, Brooklyn, N. Y.
One milling machine, 7180½, Norfolk.
Six radial drills, 7182½, Alexandria, Va.
One squaring shears, 7183½, Boston.
One milling and drilling machine, 7201½, San Diego.
One sensitive drill, 7206½, Philadelphia.
One each, boring machine, knife grinder and squaring shear, 7210½, Brunswick, Ga.

Schedule numbers, dates of opening and places of delivery follow the specifications of the tools.



Recording Pyrometer in the Office of the Production Superintendent

The Sivyer Service of providing Electric Steel Castings has for its objects the decrease of machining costs and the increase of wearing-quality and life. Both are attained by methods which result from long experience and begin with the design of the casting itself. When we find that a casting we are asked to furnish is of a design not consistent with good foundry practice, we study its function in the completed unit and offer the necessary suggestions to make it a really practicable casting job without affecting in any way its function and efficiency.

Secondly, Sivyer Service analyzes the functions of the casting and specifies the proper composition steel for the job; long experience with carbon and alloy steels has enabled us to reduce costs and increase quality remarkably for many different industries.

Thirdly, Sivyer Service makes a careful study of the pattern and molding problems involved, for improper gating and insufficient risers are often the greatest wasters of machining labor and metal.

Fourthly, Sivyer Service analyzes carefully the proper annealing methods to be used and controls their proper application through unfailingly efficient equipment and men. In short, the Sivyer Service supervises every step necessary to secure unusually and unfailingly good castings of electric steel. It never relies on one factor alone, relies very little even on the natural freedom of electric steel from occluded gases and on its commonly recognized merit in resisting crystallization. It also depends but little on the inherent scientific accuracy of the electric furnace process. From casting-design to sand-blasting and tumbling, the fundamental superiority of Sivyer Steel is due to its men and metal. Their value is best proved by the fact that, although the production of steel castings is generally looked upon as a local one, the Sivyer market is national.

SIVYER S CASTINGS

TO careful users of steel castings it cannot be enough to know that the castings they buy have been heat treated. Even more important than the process, is the way in which it is carried out. All Sivyer Castings are heat treated in ovens regulated not only by trained and long experienced men, but regulated also by the factory superintendent himself. The recording instruments in his office make sure that every heat is treated exactly as the composition of its metal, and the nature of the casting, demand. This careful recording and counterchecking of the annealing process has been no small factor in winning for Sivyer Castings the national market which is theirs.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

Huntingdon county. The award probably will be announced soon through the state board of public grounds and buildings upon receipt of sanction from Washington.

PITTSTON, PA.—The Pennsylvania Coal Co. will build a $10,000 addition to its plant soon.

POTTSVILLE, PA.—The Dark Water Coal Co., of St. Clair, Pa., will open up new stripping operations at its mine very soon.

READING, PA.—A hosiery mill will be built at West Lawn, a suburb of this city, for William S. Thompson of Dover, N. J.

REYNOLDSVILLE, PA.—The Asbestos Textile Co. is building an addition to its plant, 30 x 100 feet.

REYNOLDSVILLE, PA.—A new company, in which Harry Copping, Joseph C. Williams and James Norris of this place are interested, has taken over the Reynoldsville Woolen mills and will make changes in the plant for the manufacture of mine cars.

SCRANTON, PA.—The Price-Pancoast Coal Co. has let the contract for an electric power plant at Throop, Pa., to cost $75,000 to Salvatore Palumbo, Real Estate Exchange building, Scranton, Pa.

SCRANTON, PA.—E. A. Fuller has received the general contract for a $75,000 addition to the plant of the MacCar Truck Co. Plans call for a structure one story, 70 x 200 feet.

SHARON, PA.—The Pennsylvania Tank Car Co. has started the erection of an addition to its plate works at Masury, to be 200 feet long.

SHARON, PA.—The Savage Arms Corp. will build a $300,000 addition to its plant to include a power plant.

TITUSVILLE, PA.—The Cyclops Steel Co. will build a 1-story machine shop 65 x 92 feet.

YORK, PA.—The York Safe & Lock Co. has let the contract for a pattern shop and foundry, 60 x 100 feet, and also for an addition, 90 x 200 feet to its plant here.

ATLANTIC CITY, N. J.—It is rumored the Bethlehem Loading Co. plans to convert its shell loading plant into a steel plant.

BLOOMFIELD, N. J.—A $5000 addition will be erected at the plant of the American Arms & Fuse Co.

BOONTON, N. J.—The Radium Luminous Material Corp. has arranged for increased power facilities to provide for expansion in manufacturing.

BOUND BROOK, N. J.—The Plants of the Metals Disintegrating Co., Bound Brook Stove Works and Bound Brook Engine Works recently were damaged by explosions and fire.

CAMDEN, N. J.—The plant of the Camden Iron Works recently was badly damaged by fire. The loss was estimated at $50,000.

CAMDEN, N. J.—The plant of the Broadway Auto Sheet Metal Co. recently suffered heavy damage as the result of a fire. The loss was estimated at $10,000. The plant will probably be rebuilt.

CAPE MAY, N. J.—Government has let contract to Cramp & Co., Philadelphia, for building of power house, to cost $37,321.

ELIZABETH, N. J.—The Duesenberg Motors Corp. has taken over additional property on which it plans the erection of an addition to its plant.

ELIZABETH, N. J.—The contracts for the erection of 250 houses at Elizabeth and Kenilworth for the government have been awarded to M. Byrnes Building Co., for $385,000. Charles Flocken, of Newark, N. J., also was given a house contract for $338,000. Wilhelm & Sons will erect government houses to cost $200,000.

GARWOOD, N. J.—The National Boiler Co. will build a 1-story, 100 x 105-foot foundry addition. Architects Cooper & Co., Newark, N. J., have completed plans.

HOBOKEN, N. J.—The plant of the F. J. Rooney Lamp Co. recently was badly damaged by fire. The plant will probably be rebuilt.

JERSEY CITY, N. J.—The McWilliams & Son Co. has filed plans for the erection of a forge shop addition to be built at a cost of $8800.

HOBOKEN, N. J.—J. K. Furten Corp., New York, has been awarded the contract by the government for building of an engineering school at Stevens institute, to cost $234,746.

JERSEY CITY—The Erie railroad has had plans prepared for the erection of an addition to its locomotive shops here.

JERSEY CITY, N. J.—The New York Blue Print Paper Co. has been incorporated with $60,000 capital to manufacture drawing instruments. Eugene Bruning and Kurd Morch, New York, are incorporators.

JERSEY CITY, N. J.—The Hudson Concrete Construction Co. has a contract to erect a foundry for the Vulcan Iron Works. The building will cost $50,000.

NEWARK, N. J.—Fire damaged the drier houses of the Butterworth-Judson Corp., recently, causing a loss of $56,000.

LINDEN, N. J.—MacGovern & Co., New York City, plan to build a 1-story 48 x 150-foot fireproof storage plant.

JERSEY CITY, N. J.—The Jersey City Cutting & Welding Co., has been incorporated by J. G. Lowe and Samuel Lowe, Jersey City, with $4000 capital, to manufacture machines.

NEWARK, N. J.—Heller Bros. Co. contemplates making alterations to its foundry, to cost $5000.

NEWARK, N. J.—F. Kilgus has been awarded the contract by Oxweld Acetylene Co., for a brick factory building, 42 x 100 feet, to cost $49,800.

NEWARK, N. J.—Kraeuter & Co. is in the market for an upright Helve-Bradley hammer of 200 pounds capacity.

NEWARK, N. J.—C. A. Rimelspacher & Co., Inc., has been incorporated with $125,000 capital to manufacture tools, etc. The incorporators are C. A. Rimelspacher and Henry Pomerchu, of Newark.

NEWARK, N. J.—The Essex Belt Fastener Co. has filed notice of organization with $100,000 capital.

PHILIPSBURG, N. J.—People's Water Co. has issued $50,000 more stock and will build additions to its plant.

SOUTH AMBOY, N. J.—Raritan River Road Co., of Jersey City, has let a contract to the Austin Co., Cleveland, O., for erection of round house, machine shop, boiler house and storehouse, to cost $196,490.

TRENTON, N. J.—The Pennsylvania railroad is building a 1-story engine house at its local yards to cost about $10,000.

TRENTON, N. J.—The Public Service Gas Co. has been given authority to issue $1,410,000 of capital stock and will use the proceeds for extensions to plants.

WEST ORANGE, N. J.—The Reliable Electric Plating Co. has been incorporated by Joseph Danbeck, West Orange, with $50,000 to operate as silversmiths, etc.

WHITE PLAINS, N. Y.—The American Traction Ring Co. has been incorporated with a capital of $10,000 to engage in the manufacture of anti-skidding devices.

WEEHAWKEN, N. J.—The Weehawken Dry Dock Co. is said to be contemplating the erection of a new plant on property which it recently purchased.

NEW CASTLE, DEL.—The American Manganese Steel Co. is awarding contracts for a 1-story, 50 x 50-foot addition to its plant.

WILMINGTON, DEL.—The American Car & Foundry Co., contemplates the erection of a machine shop at an estimated cost of $30,000.

BALTIMORE—A. Wilford, Sr., 1413 Haubert street, recently purchased a factory on East Fort avenue and plans to equip it for a machine shop.

Business Changes

THE Spokane office of the American Smelting & Refining Co. will be removed to Seattle before Jan. 1. The purpose of this change is to combine the work of the American Smelting & Refining Co. with that of the American Smelters Securities Co., owner of the Tacoma smelter. Bert F. Smith, field engineer for the American Smelting & Refining Co., will remove to Seattle.

* * *

Garfield Myers, machinery dealer with offices in the Hearst building, San Francisco, has changed his name to C. A. Garfield. The firm name of Garfield Myers & Co. has been changed to Garfield & Co.

* * *

The German Bronze Co., Erie, Pa., has changed its name to the Erie Bronze Co.

* * *

The Austin Co., Cleveland, construction engineers, has moved its Washington office to 1406 G street, N. W. C. F. Chard is in charge.

* * *

The F. O. Stallman Supply Co., San Francisco, machine tools, etc., has moved from 129 First street, to a new structure on the southeast corner of First street at Natoma avenue.

Central States Activities

DE PERE, WIS.—The DePere Mfg. Co. is enlarging its works by addition of a 1-story brick and steel building, 100 x 100 feet, which will be equipped with a 30-ton electric traveling crane.

GALESVILLE, WIS.—About $7500 will be expended by the Davis Milling & Power Co. in improvements to its water power and steam light, power and milling plant. Equipment already has been contracted for.

KOHLER, WIS.—The Kohler Co. has awarded a contract to the Alphons Custodis Co., Chicago, to replace three steel stacks with brick structures of special design.

MADISON, WIS.—The state highway commission, state capitol, is taking bids for the construction of reinforced concrete and steel bridges in Chippewa and Clark counties, the estimated cost of which is $3000 each. A. R. Hirst is chief engineer.

MARSHFIELD, WIS.—Miller Bros., scrap iron dealers, have acquired the Hanse-Bille factory building and are remodeling it into a store and warehouse at a cost of $3500, including new equipment and scrap handling machinery.

MILWAUKEE—The Modern Steel Casting Co. has been granted a permit to build a 1-story, brick warehouse addition, 30 x 90 feet, at its plant, Concordia avenue and Thirty-third street.

MILWAUKEE—Articles of incorporation have been

Kreodone is pre-eminently the floor for any kind of plant

Kreodone wood block floors will out-wear granite; they save money; easy on the feet; better production

THE floor of your plant is in some ways the most important feature. It must bear the loads, the rough usage, the pounding and thumping of heavy articles; the friction of factory trucks; the heat, the cold—and often the effect of steam or acids.

Kreodone wood floor blocks meet all these requirements—meet them better than any other floor material. This is a strong statement; we couldn't make it if we didn't know it to be true.

Kreodone floor blocks are made entirely by ourselves. We select the close-grained long-leaf yellow pine and cut the blocks in exactly the right way to provide a permanent wearing surface. Each block is filled with our own special patented oil—the oil that has never been equalled as a wood preservative. It puts everlasting wearing qualities into the blocks and converts the wood into a true flooring material which surpasses brick, cement or planks in any and every way.

The result is a wood block floor that has remarkable wearing qualities, together with a continuously smooth, comfortable surface that is easy on the feet. It is a quiet floor, and its construction—laid in pitch on concrete, with each and every block cemented together by the pitch, converts the blocks into practically a one-piece, non-shrinking, non-bulging, ever-wearing floor. It is waterproof and sanitary.

Beware of Infringements and Imitations

The trade mark name of Kreodone is imitated and infringed upon, and the floor blocks themselves are imitated. We announce that we will protect our rights to the fullest, and urge you to make sure that you are getting genuine Kreodone wood block floors.

Get Full Information Now

Write us for full particulars concerning Kreodone wood block floors; tell us the space you must cover and the nature of your plant and we will give you specific recommendations.

Republic Creosoting Company

Indianapolis, Indiana

PLANTS: Indianapolis Minneapolis Mobile Seattle Norfolk

filed by the Wisconsin Peerless Starter Co. to manufacture and deal in automobile engine starters and other accessories. The capital is $10,000 and the incorporators are Henry Messmer, William O'Connor and E. L. Van Buo.

AKRON, O.—G. P. Hoffman, director of public service, will take bids until December 20, for pipe, 65 x 25 feet, for the waterworks department.

AKRON, O.—The Union Fireproof Warehouse Co. is said to be contemplating the erection of two large warehouses, 90 x 250 feet and 60 x 150 feet.

CARROLLTON, O.—The Robinson Clay Products Co. is said to be contemplating the erection of an addition.

CINCINNATI—The Globe Soap Co. contemplates making extensions to its plant.

CINCINNATI, O.—Architects Kruckemeyer & Strong have prepared plans for the erection of a warehouse for the Perry-Derrick Co., 30 x 50 feet.

CINCINNATI—Plans have been prepared for the erection of a freight terminal here for the Cincinnati, Northern & Lebanon railroad.

CINCINNATI—The Proctor-Collier Co., Commercial Tribune building, is having plans prepared for the erection of a 3-story addition, 100 x 140 feet to its plant on McMillan street.

CINCINNATI—The Peters Arms Co. is arranging to convert the plant of the P. K. Le Blond Machine Tool Co., at Lowellville, O., into a small arms munition plant.

CINCINNATI—The Ferro Concrete Construction Co. has a contract to erect a freight terminal building for the Cincinnati, Lebanon & Northern railroad, at Court street and Gilbert avenue. The building will be erected at a cost of $300,000.

CLEVELAND—The Ideal Bronze Mfg. Co., 1265 East Fifty-fifth street, contemplates the erection of a factory building at a cost of $20,000.

CLEVELAND—The Ohio Chemical Co., 1177 Marquette street, contemplates the erection of a 1-story plant, 60 x 130 feet.

CLEVELAND—The National Acme Co., 7500 Stanton avenue, let a contract for the erection of a building 120 x 300 feet.

CLEVELAND—It is reported that the project for a $50,000 factory for the Anchor Post & Iron Co., 722 Guardian building, which was held up by the war, is to be revived.

DAYTON, O.—The National Cash Register Co. has awarded a contract for the erection of a storage building, 150 x 540 feet.

DAYTON, O.—The plant of the Monarch Engineering Co. recently was damaged by fire, with a loss estimated at $75,000. The company plans to rebuild immediately.

DAYTON, O.—The Ferguson Co., 6523 Euclid avenue, Cleveland, has the contract to erect a warehouse, 130 x 540 feet, for the National Cash Register Co.

KINGSVILLE, O.—The Ferro Concrete Construction Co. has been awarded a contract to erect a factory for the Peters Cartridge Co.

RAVENNA, O.—Plans have been ordered prepared for the erection of a 3-story building for the Oak Rubber Co.

SANDUSKY, O.—The Farrell-Cheek Foundry Co. recently announced plans had been completed for the installation of an electric furnace.

SANDUSKY, O.—The plant of the Libby Glass Co. recently was badly damaged by fire. The plant will be rebuilt immediately.

TOLEDO, O.—Architects are preparing plans for the erection of an addition to the plant of the Walson Mfg. Co., 420 Knopp street.

TOLEDO, O.—The Air Way Co. has been organized and contemplates the erection of a factory here shortly.

TOLEDO, O.—The Warren Mfg. Co., 420 Knapp street, recently purchased a factory site at Albion and Post streets, and contemplates the erection of a factory building.

WARREN, O.—The Crowell-Lundoff-Little Co., 1951 East Fifty-seventh street, has been awarded a contract to erect a factory here for the Supreme Motors Co.

WARREN, O.—Rapid progress is being made on the erection of a roundhouse at De Forest Junction, for the Baltimore & Ohio railroad. The building, when completed, will cost about $200,000.

YOUNGSTOWN, O.—The Youngstown Sheet & Tube Co. has awarded a contract for the erection of a coal and sand handling plant.

ZANESVILLE, O.—The plant of the Brush-McCoy Pottery Co. in East Brighton recently suffered a heavy loss by fire.

ASHLAND, KY.—The Thornton Trolley Wheel Co. recently was incorporated with $250,000 capital stock.

LOUISVILLE—W. G. Dunnington, 909 West Main street, recently let a contract for the erection of a tobacco drying warehouse.

GREENUP, KY.—The city is raising funds for the rebuilding of its light plant here.

BRIDGEPORT, W. VA.—Riley & Riley Co. will rebuild its planing mills at a cost of $10,000.

CHARLESTON, W. VA.—The Eagle By-Products Co. is arranging to build its plant here.

CHARLESTON, W. VA.—The Tennessee Coal & Gas Co., of Pittsburgh, has been incorporated here with a capital of $50,000 by S. C. Paul, H. C. Owen, C. F. Kenny, C. L. Warner and I. T. Wood, all of Pittsburgh.

ELKINS, W. VA.—The Western Maryland railroad has let the contract to the Price Construction Co., Baltimore, for a $500,000 addition to its plant.

FAIRMONT, W. VA.—The Oldbury Electro Chemical Co., Buffalo avenue, Niagara Falls, has concluded arrangements with the government for the operation of a plant here to cost $500,000.

HARTMAN, W. VA.—The Baltimore & Ohio railroad has let the contract to Fraine Bros. & Haigley, Baltimore, for a coal trestle here, to cost $25,000.

HUNTINGTON, W. VA.—L. A. Woolcott & Co. will build a commercial garage on Fourth avenue at once.

MARTINSBURG, W. VA.—The National Shale Brick Co. will build three plants in this vicinity.

MORGANTOWN, W. VA.—The Barber Coal Co. has been incorporated with a capital of $25,000, by W. D. Reed, of Fairmont; Victor E. Barber and Edith Barber of Clarksburg; Guy Hall and Mabel Wilson, of Morgantown.

PARKERSBURG, W. VA.—The M. V. Construction Co. has the contract for building a plant at Riverside, W. Va.

The Pacific Northwest

SACRAMENTO, CAL.—The Ross Construction Co., Forum building, has been awarded the contract for construction of a marine railway at the naval coaling station at La Playa, San Diego, Cal.

SACRAMENTO, CAL.—The Pacific Marine & Construction Co., which will operate at San Diego, Cal., and build concrete vessels for the Emergency Fleet corporation, has obtained permission from the corporation commissioner to issue its capital stock of $1,000,000 to a Delaware corporation of the same name.

SAN FRANCISCO—Congress has been asked to make a preliminary survey for a bridge over the Golden Gate, in a resolution passed by the board of supervisors.

SAN FRANCISCO—James L. McLaughlin, 244 Kearny street, submitted the lowest bid for the construction of an oxy-acetylene generating plant to be constructed at the Mare Island navy yards.

SAN FRANCISCO—The state board of harbor commissioners is taking bids for an auxiliary fire protection system for piers. Considerable galvanized iron will be used.

SAN FRANCISCO—Engineer Leland S. Rosener, Insurance Exchange building, is completing plans for a floating drydock, 126 x 425 feet, of wood construction. The dock is to be erected in the Oakland estuary by the Moore Shipbuilding Co.

SAN PEDRO, LOS ANGELES, CAL.—The government has started dredging the west basin of Los Angeles harbor to make room for the $1,000,000 drydock to be built by the Los Angeles Shipbuilding & Dry Dock Co.

Business In Canada

INDUSTRIAL ISLAND, B. C.—The Pacific Construction Co., Vancouver, B. C., is preparing to build a machine shop and warehouse here.

VANCOUVER, B. C.—Plans are being prepared for an addition to the plant of the Western Canada Shipyards, Ltd., Carrall street, to cost $43,500.

VANCOUVER, B. C.—The federal government has entered into a contract with J. Coughlan & Sons for the construction of four steel ships.

VANCOUVER, B. C.—The Fuller Engineering Co. has awarded the contract for the erection of a steel framed powdered fuel plant, 40 x 117 feet, to the Canadian Northwest Steel Co. The plant will be owned by the B. C. Sugar Refinery and cost $39,000.

BELLEVILLE, ONT.—The Belleville Rubber Co., Ltd., has been incorporated to manufacture rubber, rubber goods, etc., with $1,000,000 capital stock; by Wilson S. Morden, Ernest W. McNeill, Carroll D. Dyke and others all of Toronto.

GUELPH, ONT.—The Dominion Linens, Ltd., is in the market for a horizontal tubular boiler, 80 inches by 18 feet.

HAMILTON, ONT.—The Ford-Smith Machine Co. has moved into its new building just completed at a cost of $50,000, which will be equipped with new machinery.

HAMILTON, ONT.—The Fox Chain Co. will establish a plant for the manufacture of anti-skid chains for automobiles, etc. Franklin Fox is associated with the new concern, which has just been formed with a capital of $200,000.

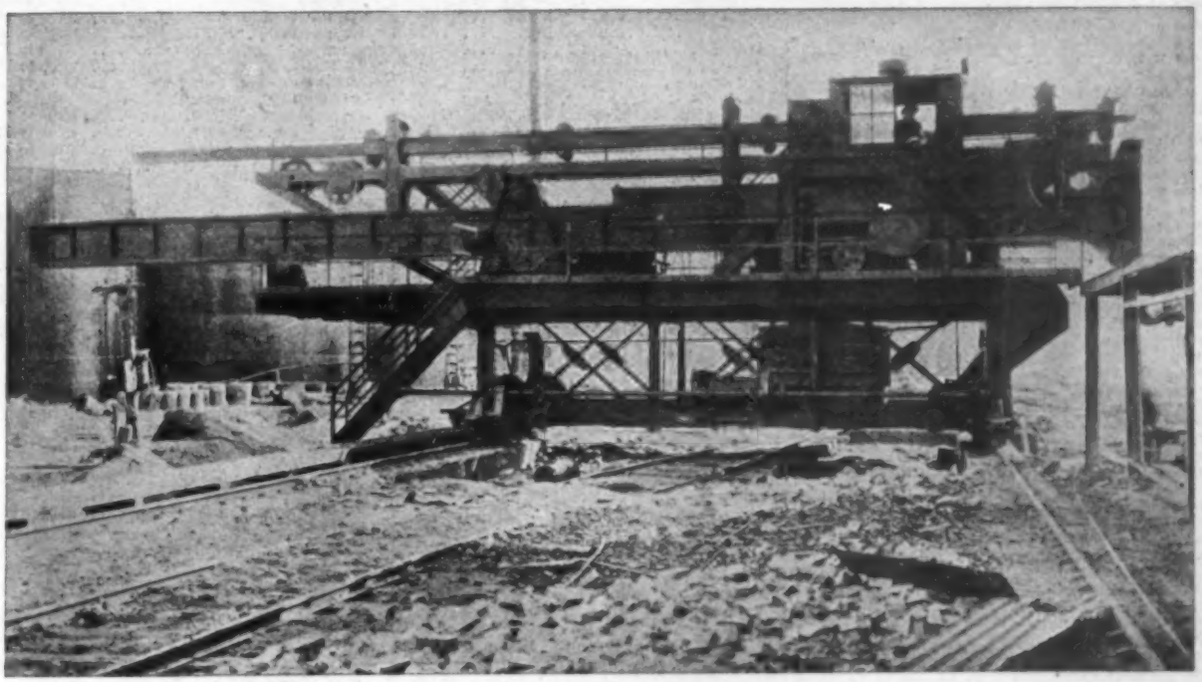
LONDON, ONT.—John A. Moody is in the market for a veneer machine and basket making equipment.

LONDON, ONT.—The McClary Mfg. Co. will build an addition to its stove plant to cost about $40,00. Col. W. M. Gartshore is manager.

WINDSOR, ONT.—Plans have been prepared for a plant for the Menard Motor Trucks Co., Ltd., 100 London street, to cost $60,000. J. C. Pennington, La Belle building, is architect.

W-S-M

STEEL PLANT EQUIPMENT
COKE OVEN MACHINERY
GAS PRODUCERS
ORE AND COAL HANDLING MACHINERY
SPECIAL CRANES
MINING MACHINERY
HYDRAULIC TURBINES



Coke Oven Machinery

Since 1899, when the first W-S-M Coke Pusher was designed and built, most large installations of by-product ovens have been served by W-S-M machines.

The leading builders of by-product coke ovens are our principal customers for W-S-M coke oven machinery.

The combined coke pusher, coal leveler and door extractor shown above represents the latest by-product coke oven practice. With a single operator it serves about 100 ovens.

Those interested in the operation or contemplating the installation of coke ovens should have Bulletin A8, "W-S-M Coke Oven Machinery".

THE WELLMAN-SEAVER-MORGAN CO.

CLEVELAND, OHIO, U.S.A.

Iron and Steel Prices

Corrected to Tuesday Noon

IRON ORE

Superior Ores, Per Ton, Lower Lake Ports	
Old range Bessemer, 55 iron	$6.65
Mesabi Bessemer, 55 iron	6.40
Old range non-Bess., 51½ iron	5.90
Mesabi non-Bess., 51½ iron	5.75

WAREHOUSE PRICES

Steel bars, Chicago	4.17c
Steel bars, Cleveland	4.07c
Steel bars, Detroit	4.13c
Steel bars, Philadelphia	4.145c
Steel bars, New York	4.17c
Steel bars, St. Louis	4.24c
Steel bars, Cincinnati	4.13c
Steel bars, St. Paul	4.395c
Steel bars, Buffalo	4.10c
Iron bars, Buffalo	4.70c
Iron bars, Chicago	4.77c
Iron bars, Cleveland	4.67c
Iron bars, Detroit	4.75c
Iron bars, St. Louis	4.84c
Iron bars, Cincinnati	4.13c
Iron bars, Philadelphia	4.745c
Iron bars, News York	4.77c
Shapes, Chicago	4.27c
Shapes, Detroit	4.23c
Shapes, St. Louis	4.34c
Shapes, St. Paul	4.495c
Shapes, New York	4.27c
Shapes, Cleveland	4.17c
Shapes, Philadelphia	4.245c
Shapes, Buffalo	4.20c
Shapes, Cincinnati	4.23c
Plates, Buffalo	4.45c
Plates, Chicago	4.52c
Plates, Detroit	4.48c
Plates, St. Louis	4.59c
Plates, St. Paul	4.745c
Plates, New York	4.52c
Plates, Cleveland	4.42c
Plates, Philadelphia	4.495c
Plates, Cincinnati	4.48c
No. 10 blue anl. sheets, Chicago	5.52c
No. 10 blue anl. sheets, Cleveland	5.42c
No. 10 blue anl., Buffalo	5.45c
No. 10 blue anl. sheets, St. L.	5.59c
No. 10 blue anl. sheets, Cincinnati	5.48c
No. 10 blue anl. sheets, St. Paul	5.745c
No. 10 blue anl. sheets, Detroit	5.48c
No. 28 black sheets, Chicago	6.52c
No. 28 black sheets, Cleveland	6.42c
No. 28 black sheets, Cincinnati	6.48c
No. 28 black, Detroit	6.48c
No. 28 black sheets, St. L.	6.59c
No. 28 black sheets, St. Paul	6.745c
No. 28 galv. sheets, Chicago	7.77c
No. 28 galv. sheets, Cleveland	7.67c
No. 28 galv. sheets, Cincinnati	7.73c
No. 28 galvanized, Detroit	7.73c
No. 28 galv. sheets, St. L.	7.84c
No. 28 galv. sheets, Buffalo	7.70c

IRON AND STEEL SCRAP

(Prices in Gross Tons)

STEEL WORKS USE

Bundled sheets, Cincinnati	24.50 to 25.00
Bundled sheets, Pittsburgh	27.50 to 28.00
Bundled sheets, Cleveland	26.00 to 27.00
Bundled sheets, Buffalo	22.00 to 23.00
Boiler plate, cut, No. 1, Chicago	24.00 to 24.50
Boiler plate, cut, No. 1, St. Louis	24.00 to 24.50
Frogs, switches, guards, St. Louis	28.50 to 29.00
Frogs, switches, guards, Chicago	29.00
Heavy melting steel, Pittsburgh	28.00 to 28.50
Heavy melting steel, Buffalo	28.00 to 29.00
Heavy melting steel, Chicago	29.00
Heavy melting steel, Cleveland	28.00 to 28.50
Heavy melting steel, Cincinnati	27.00 to 27.50
Heavy melting steel, east. Pa.	26.50
Heavy melting steel, N. Y.	23.50 to 24.00
Heavy melting steel, St. L.	28.50 to 29.00
Heavy melting steel, Birmingham	22.00 to 23.00
Baled sheets, Cleveland	28.50 to 29.00
Baled sheets, Pittsburgh	27.50 to 28.00
Baled sheets, Chicago	29.00
Knuckles, couplers, Chicago	34.00
Knuckles, couplers, St. Louis	31.00 to 32.50
Low phos. steel, Buffalo	37.50
Low phos. steel, Pittsburgh	38.50 to 39.00
Low phos. crops, eastern Pa.	39.00
Low phos. guaranteed E. Pa.	36.50
Shoveling steel, Chicago	29.00
Shoveling steel, St. Louis	27.50 to 28.00
Steel rails, short, Chicago	34.00
Steel rails, short, Cleveland	34.00
Steel rails, short, St. Louis	31.00 to 31.50
Steel rails, old, Birmingham	25.00 to 26.00
Stove plate, Chicago	24.00 to 25.00
Stove plate, Cincinnati	21.50 to 22.00
Stove plate, St. Louis	23.00 to 23.50
Stove plate, N. J. points	26.25
Stove plate, Birmingham	20.00 to 22.00
Stove plate, Buffalo	25.00 to 26.00
Stove plate, eastern Pa.	29.00
Stove plate, Cleveland	25.00 to 25.50
Stove plate, Pittsburgh	28.00 to 29.00

Freight Rates, Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.40
Newark, N. J.	4.80
Boston	5.20
Philadelphia	4.40
Pittsburgh	1.40
St. Louis	4.60
Minneapolis, St. Paul	5.70
Buffalo to:	
Albany, N. Y.	$1.75
New England (rail)	3.90
New York and Brooklyn (rail)	3.90
Virginia furnaces to:	
Philadelphia	$4.10
New England	4.70
Brooklyn, Jersey City, Newark	4.40
Birmingham, Ala., to:	
Boston	$8.00
Cincinnati	3.60
Chicago	5.00
Cleveland	5.00
Louisville, Ky.	3.30
Minneapolis, St. Paul	7.30
New York	7.70
Philadelphia	6.50
Pittsburgh	6.50
Savannah, Ga.	3.40
St. Louis	4.25
Chicago to:	
Des Moines	$3.50
Minneapolis, St. Paul	2.50
Milwaukee	.60
Moline, Ill.	1.40
Omaha	4.50
St. Louis	1.00
Ironton and Jackson, O., to:	
Chicago	$3.75
Cincinnati	1.75
Cleveland	2.40
Detroit	2.60
Indianapolis	2.30
Minneapolis, St. Paul	5.70

Freight Rates, Finished Material

Pittsburgh, carloads, per 100 lbs., to:	
New York	27.0 cents
Philadelphia	24.5 cents
Boston	30.0 cents
Buffalo	21.5 cents
Baltimore	23.0 cents
Cleveland	17.0 cents
Cincinnati	23.0 cents
Chicago	27.0 cents
Detroit	23.0 cents
Minneapolis and St. Paul	49.5 cents
Denver	$1.09
St. Louis	33.5 cents
New Orleans	38.5 cents
Birmingham	57.5 cents
Pacific coast (all rail)	$1.25
Pacific coast (tin plate)	1.25

IRON MILL USE

Busheling, No. 1, Cleveland	29.50 to 31.50
Busheling, No. 1, Buffalo	27.00 to 28.00
Busheling, No. 1, Pittsburgh	29.00 to 30.00
Busheling, No. 1, Cincinnati	27.00 to 27.50
Busheling, No. 1, Chicago	28.50 to 29.00
Busheling, No. 2, Chicago	19.50 to 20.50
Busheling, No. 1, St. Louis	28.50 to 29.00
Cast borings, New York	15.50 to 15.75
Cast borings, eastern Pa.	19.00
Cast borings, Buffalo	17.00 to 18.00
Cast borings, Cleveland	18.00 to 18.25
Cast borings, Cincinnati	16.00 to 16.50
Cast borings, Pittsburgh	19.00
Cast borings, Birmingham	17.00 to 18.00
Cast borings, Chicago	16.50 to 17.00
Cast borings, St. Louis	17.50 to 18.50
City wrought, long, N. Y.	28.50 to 29.00
Cut forge, Chicago	31.00 to 31.50
Forge No. 1, eastern Pa.	26.50
Forge flashings, large, Cleveland	27.00 to 27.50
Forge flashings, small, Cleveland	28.00 to 29.00
Grate bars, Buffalo	24.00 to 25.00
Grate bars, Cleveland	25.50 to 26.00
Grate bars, N. J. points	26.25
Iron axles, Pittsburgh	46.50
Iron axles, Cincinnati	43.50 to 44.00
Iron axles, Cleveland	46.50
Iron axles, Chicago	46.50
Iron axles, eastern Pa.	46.50
Iron axles, St. Louis	44.00 to 44.50
Iron axles, Buffalo	42.00 to 43.00
Iron rails, Chicago	39.00
Iron rails, Buffalo	34.00 to 35.00
Iron rails, Cincinnati	34.50 to 35.00
Iron rails, St. Louis	38.50 to 39.00
Iron rails, Cleveland	37.00 to 38.00
Machine turnings, Cincinnati	16.00 to 16.50
Machine turnings, Cleveland	18.00 to 18.25
Machine turnings, Buffalo	17.00 to 18.00
Machine turnings, N. Y.	15.50 to 15.75
Machine turnings, Pittsburgh	18.00 to 19.00
Machine turnings, east. Pa.	19.00
Machine turnings, Birmingham	16.00 to 17.00
Machine turnings, Chicago	16.00 to 17.00
Machine shop turnings, St. Louis	18.00 to 18.50
Pipes and flues, Cleveland	26.50 to 27.50
Pipes and flues, Chicago	25.75 to 26.25
Pipes and flues, St. Louis	24.00 to 24.50
R. R. mach. cast, No. 1, Buffalo	34.00
R. R. wrgt. No. 1, Buffalo	32.00 to 33.00
R. R. wrgt. No. 1, east Pa.	34.00
Railroad wrgt. No. 1, Cincinnati	32.00 to 32.50
Railroad wrgh., No. 1, Cleveland	33.50 to 34.00
R. R. wrought, No. 1, Pittsburgh	34.00
Railroad wrgt., No. 2, Chicago	31.00 to 31.50
Railroad wrought, No. 1, Chicago	32.00 to 32.50
R. R. wrought, No. 1, Birmingham	25.00 to 26.00
No. 1 yard wrought, Eastern Pa.	33.00
No. 1 bushelings wrgt., East. Pa.	31.00
Sheet wrought, Pittsburgh	34.00
Railroad wrgt., No. 1, St. Louis	31.50 to 32.00
Railroad wrought, No. 2	30.00 to 30.50
Wrought pipe, Buffalo	27.00 to 28.00
Wrought pipe, East. Pa.	33.00
Wrought pipe, ungraded, East. Pa.	29.00

IRON OR STEEL WORKS USE

Axle turnings, Cleveland	$24.00
Axle turnings, Buffalo	23.00 to 24.00
Heavy axle turnings, East. Pa.	24.00
Heavy axle turnings, Pitts.	23.50 to 24.00
Shafting, New York	35.50
Shafting, East. Pa.	39.00
Steel car axles, Birmingham	30.00 to 35.00
Steel car axles, Pittsburgh	46.50
Steel car axles, New York	43.00
Steel car axles, Buffalo	44.00 to 46.00
Steel car axles, Cleveland	44.00
Steel car axles, East. Pa.	46.50
Steel car axles, Chicago	46.50
Shafting, St. Louis	34.50 to 35.00
Steel car axles, St. Louis	44.00 to 44.50

IRON FOUNDRY USE

Car wheels (iron), Pittsburgh	$29.00
Car wheels (steel), Pittsburgh	34.00 to 35.00
Car wheels, East. Pa.	29.00
Car wheels, Buffalo	29.00
Car wheels, Chicago	29.00
Car wheels, St. Louis	28.50 to 29.00
Car wheels, Birmingham	24.00 to 25.00
Car wheels, Cleveland	30.00
Tram car wheels, Birmingham	23.00 to 24.00
Cast, No. 1, Birmingham	25.00 to 26.00
Cast No. 1, cupola, East. Pa.	34.00
Cast, No. 1, Cleveland	32.50 to 33.50
Cast, No. 1, Cincinnati	31.00 to 31.50
Cast, 1, heavy, New York	30.50 to 31.00
Cast, 1, machy., New York	32.25 to 32.50
Cast, No. 1, Chicago	31.00 to 32.00
Cast, No. 1, Pittsburgh	32.00 to 32.50
Cast, No. 1, St. Louis R. R.	29.50 to 30.00
Malleable, Cincinnati	27.50 to 28.00
Malleable, Cleveland	33.00 to 33.50
Malleable, Buffalo	32.00 to 33.00
Malleable, Pittsburgh	32.00 to 32.50
Malleable, East. Pa.	29.00
Malleable, cupola, East. Pa.	33.00
Malleable, railroad, Chicago	31.00 to 32.00
Malleable, agricultural, Chicago	30.00 to 30.50
Malleable, railroad, St. Louis	29.50 to 30.00
Malleable, agricultural, St. Louis	25.00 to 25.50

MISCELLANEOUS USES

Boiler punchings, Chicago	36.00 to 36.50
Reroll. rails, 5 ft. and over, Pitts.	34.00
Reroll. rails, 5 ft. and over, Chi.	34.00
Reroll. rails, 5 ft. and over, E. Pa.	34.00
Reroll. rails, 5 ft. and over, St. L.	32.50 to 33.00
Reroll. rails, 5 ft. or over, Cleve.	34.00
Rerolling rails, long, Birmingham	37.50 to 38.50
Locomotive tires, Chicago	39.00 to 40.00
Locomotive tires, St. Louis	38.00 to 39.00